STEREO AMPLIFIER
AV-33
SERVICE MANUAL

IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherant to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

■ *CONTENTS*

100166

YAMAHA

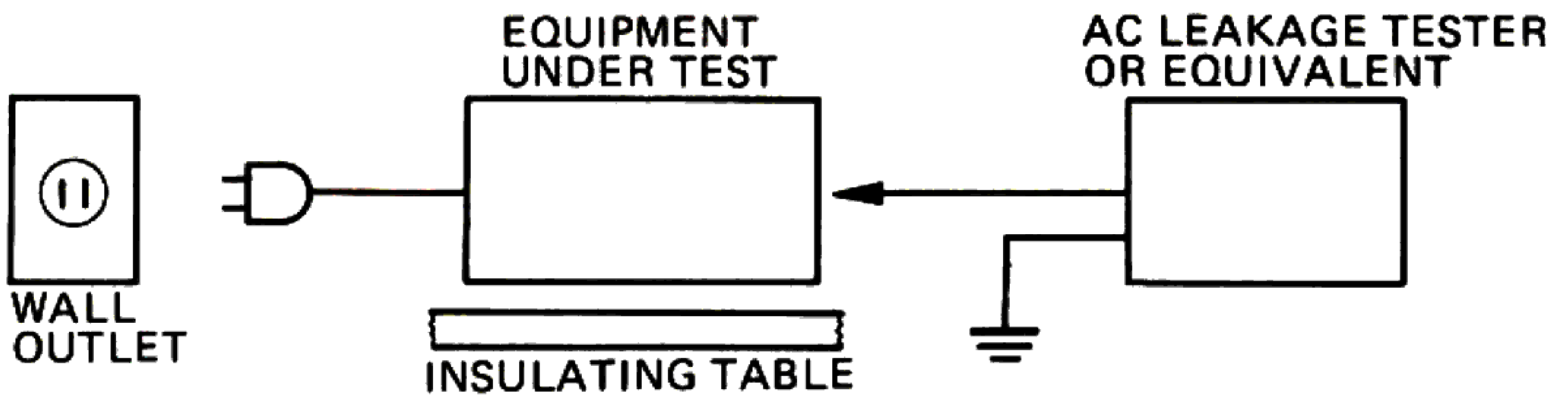
YAMAHA CORPORATION
P.O.Box 1, Hamamatsu, Japan

3.4K-803 Printed in Japan '87.12

TO SERVICE PERSONNEL

1. Critical Components Information.
   Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V Model Only).
   When service has been completed, it is imperative that you verify that all exposed conductive surfaces are properly insulated from supply circuits.

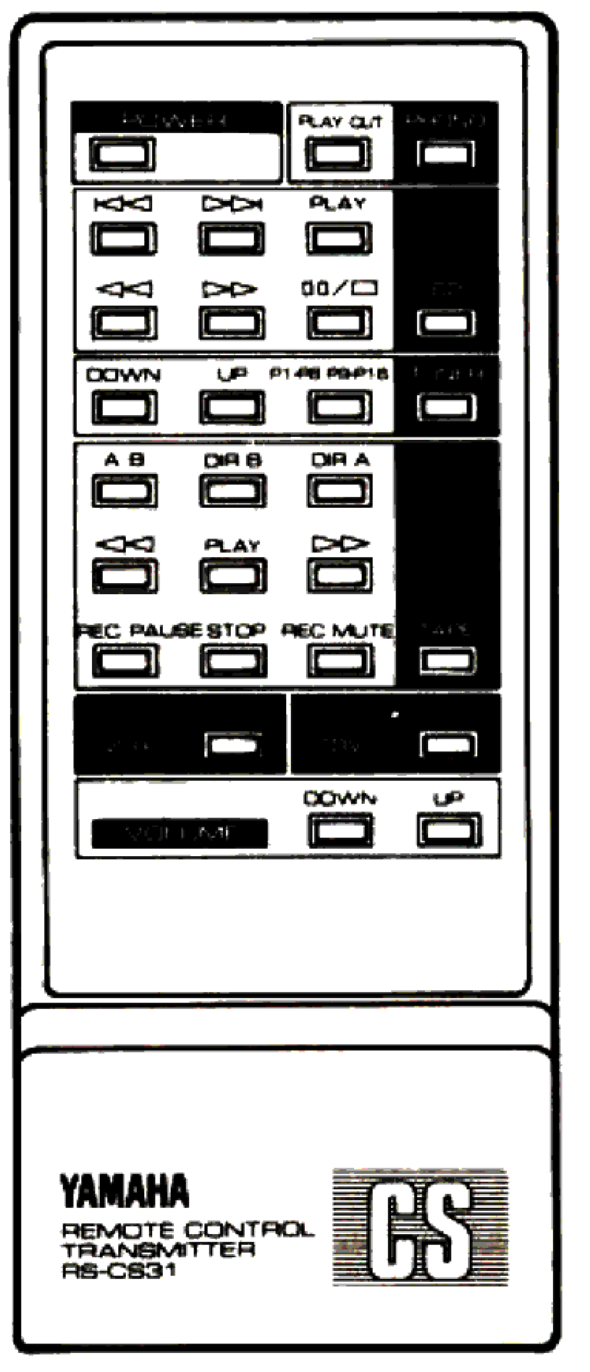
- Meter impedance should be equivalent to 1500 ohm shunted by 0.15 μF.
- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.



• POLARIZATION (U, C Model only)

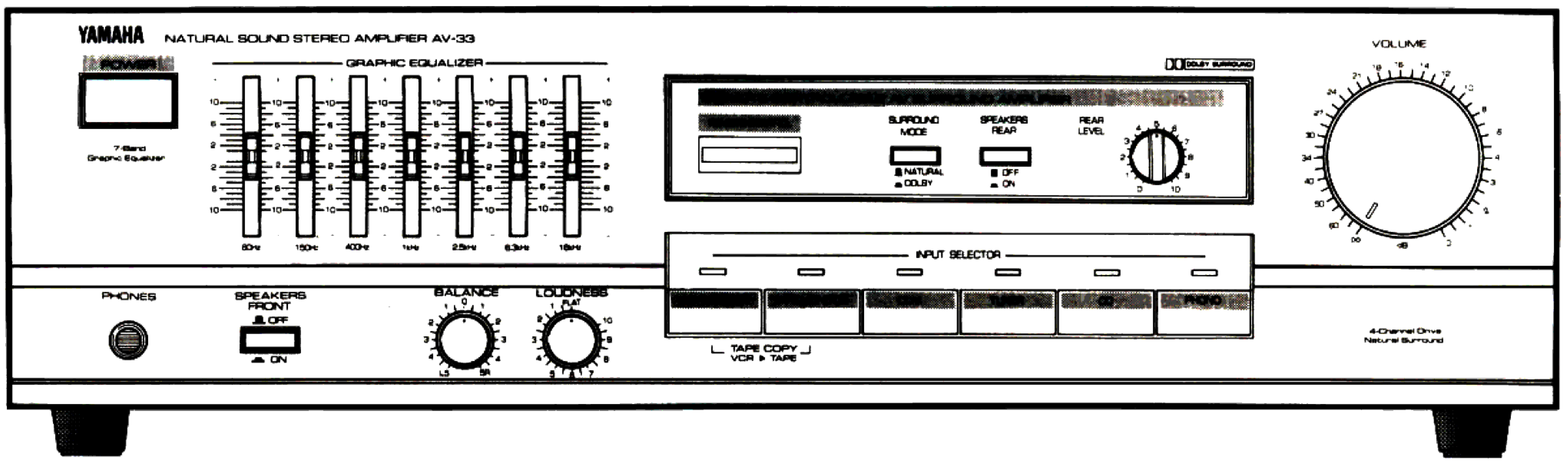
This amplifier product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature.

● RS-CS31

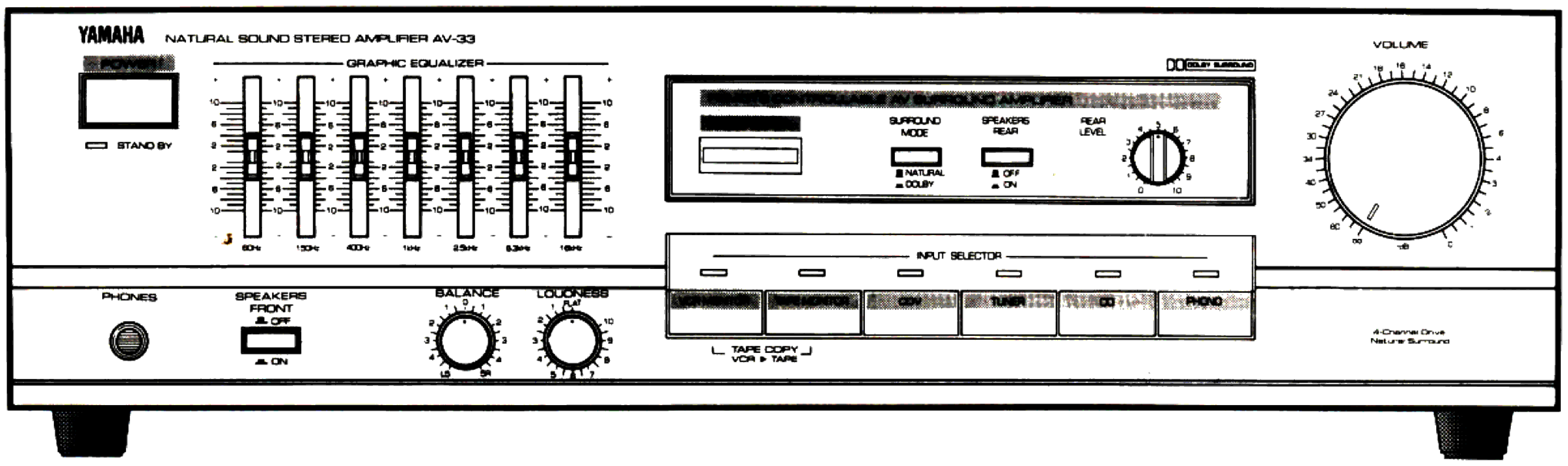


FRONT PANELS

● U.S.A., Canadian, Australian and General Model

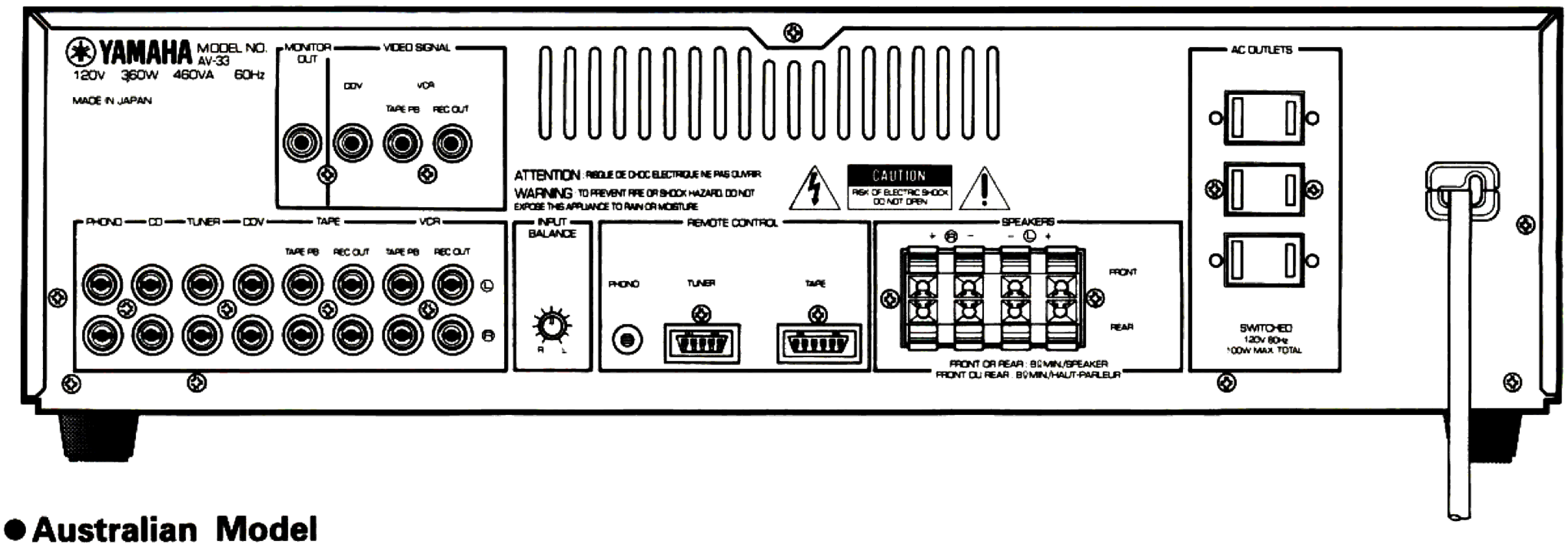


● European Model

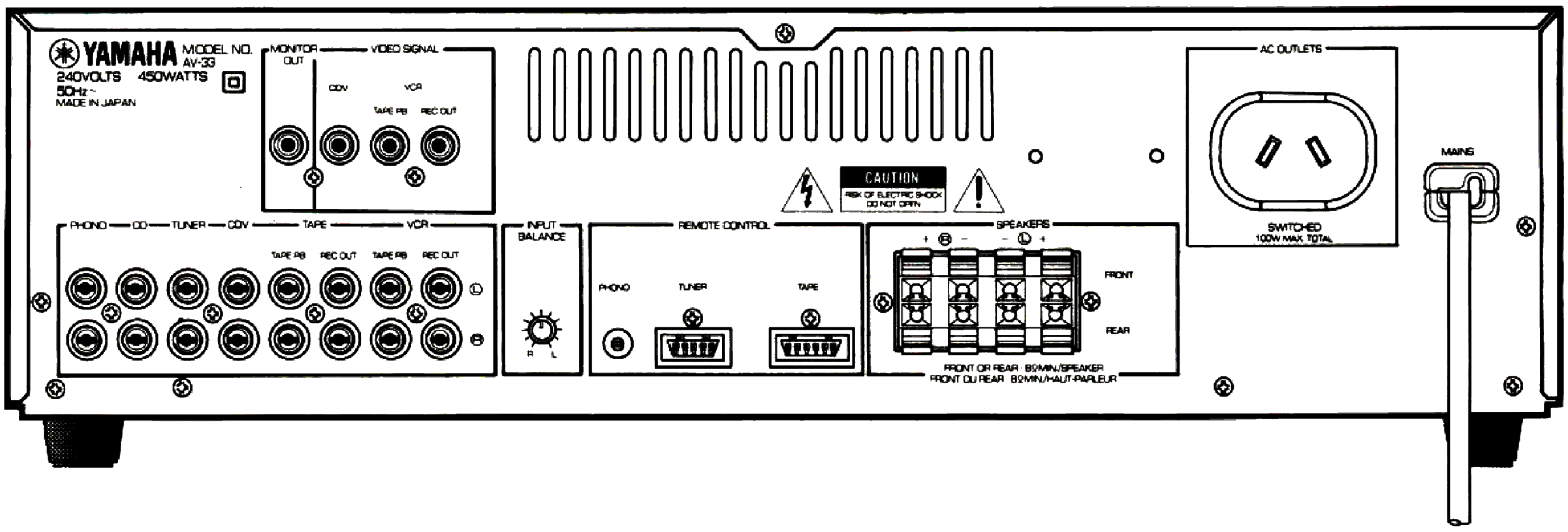


REAR PANELS

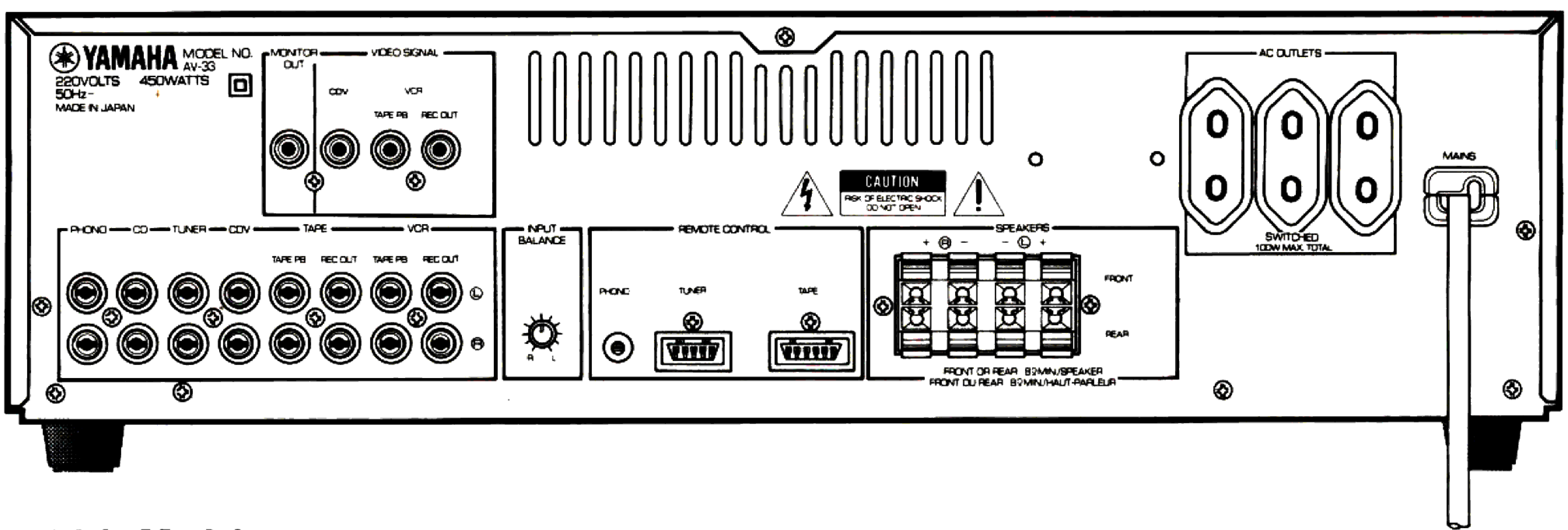
● **U.S.A. & Canadian Model**



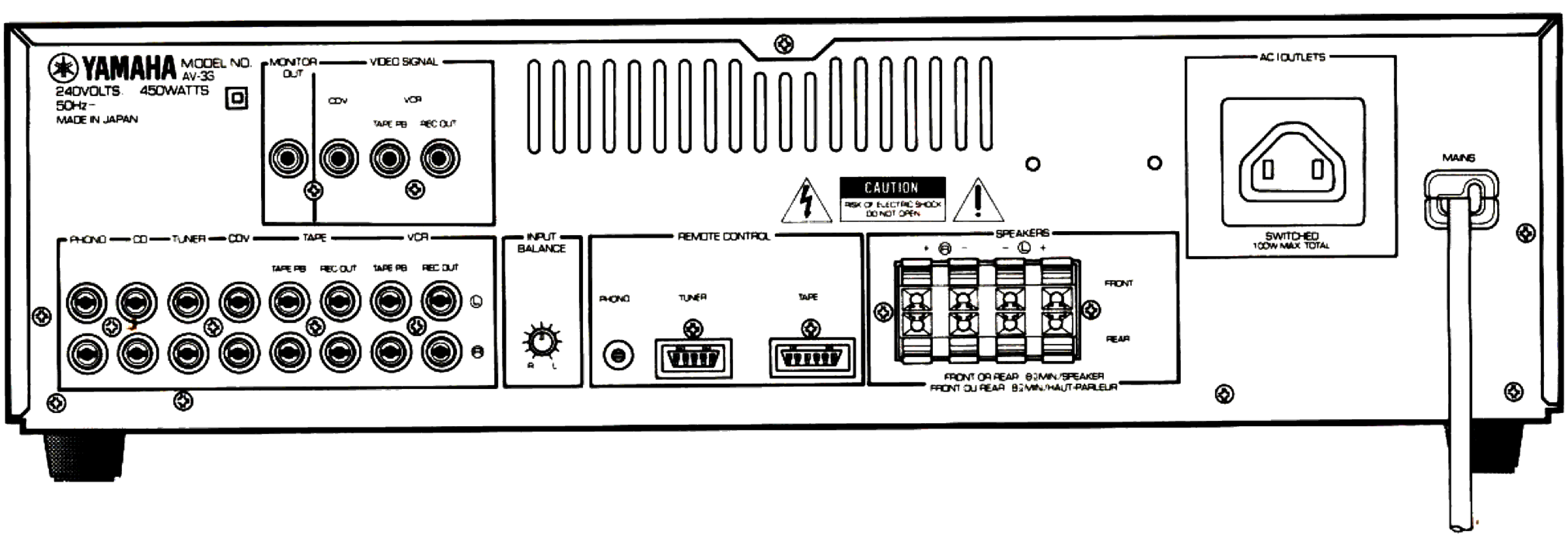
● **Australian Model**



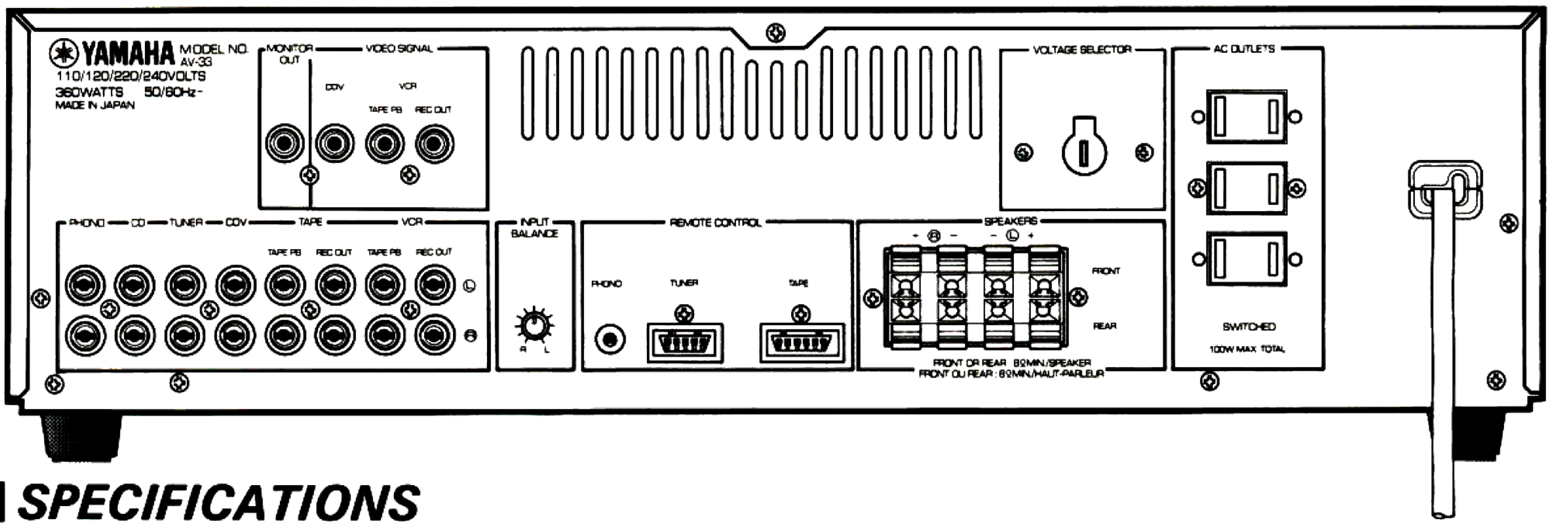
● **North European Model**



● **British Model**



● **General Model**



■ *SPECIFICATIONS*

■ AUDIO SECTION

Minimum RMS Output Power Per Channel
20Hz ~ 20kHz, 0.05% THD, 8Ω .... 100W [for R, U, C, A, B]
80W [for H]
1kHz, 0.1% THD, 8Ω .... 115W [for R, U, C, A, B]
Rear 1kHz, 0.9% THD, 8Ω
(Natural Surround) 15W

Dynamic Power Per Channel
8Ω .... 145W [for R, U, C]
120W [for A, B, H]
6Ω .... 180W [for R, U, C]
150W [for A, B, H]
4Ω .... 240W [for R, U, C]
190W [for A, B, H]

DIN Standard Output Power Per Channel
1kHz, 1% THD, 4Ω .... 115W [for H]

Dynamic Headroom
8Ω 1.6dB

IEC Power
1kHz, 0.01% THD, 8Ω .... 85W [for H]

Power Band Width
0.1% THD, 50W, 8Ω .... 10Hz ~ 60kHz

Damping Factor
1kHz, 8Ω 50

Input Sensitivity/Impedance
PHONO MM 2.5mV/47kΩ
Picture 1Vp-p/75Ω
CD etc. .... 150mV/47kΩ [for R, U, C]

Input Sensitivity (New IHF)
PHONO MM .... 0.25mV [for R, U, C]
CD etc. .... 15mV [for R, U, C]

Maximum-Input Signal
1kHz, 0.02% THD PHONO MM 80mV

Output Level/Impedance
Rec Out 150mV/470Ω

Headphone Jack Rated Output/Impedance
0.05% THD, RL = 8Ω .... 0.81V/270Ω [for R, U, C, A, B]
0.73V/270Ω [for H]

Frequency Response
20Hz ~ 20kHz, CD/etc .... ±0.5dB

RIAA Equalization Deviation
PHONO MM .... ±0.5dB

Total Harmonic Distortion (20Hz ~ 20kHz)
PHONO MM to Rec Out 3V 0.009%
CD/etc to Sp Out 50W/8Ω 0.02%

Signal to Noise Ratio (IHF-A-Network)
PHONO MM (5mV Input Shorted 79dB
CD/etc (Shorted) 100dB

Signal to Noise Ratio (New IHF)
PHONO MM 75dB
CD/etc 80dB

Input Equivalent Noise .... 125dBV [for A, B, H]

Residual Noise (IHF-A-Network) .... 250 μV [for R, U, C]

Channel Separation (Vol. −30dB)
Phono MC.MM input shorted
1kHz/10kHz 70dB/60dB
CD etc. input 5.1kΩ
terminated 1kHz/10kHz 70dB/60dB

Graphic Equalizer
Boost/Cut 60Hz .... ±12dB
150Hz .... ±12dB
400Hz .... ±12dB
1kHz .... ±12dB
2.5kHz .... ±12dB
6.3kHz .... ±12dB
16kHz .... ±12dB

Continuous Loudness Control .... −20dB (1kHz)

Gain tracking error (0 ~ −60dB) 2dB

■ GENERAL

Power Supply
U.S. & Canadian Models AC120V 60Hz
Australian & British Models AC240V 50Hz
European Models AC220V 50Hz
Others Models AC110/120/220/240V 50/60Hz

Power Consumption .... 360W [for R, U, C]
450W [for A, H, B]

AC Outlet
Switched x 3 .... 100W max. [for R, U, C, H]
Switched x 1 .... 100W max. [for A, B]

Dimensions (W x H x D) .... 435 x 122.5 x 300.5mm
(17-1/8" x 4-13/16"
x 11-53/64")

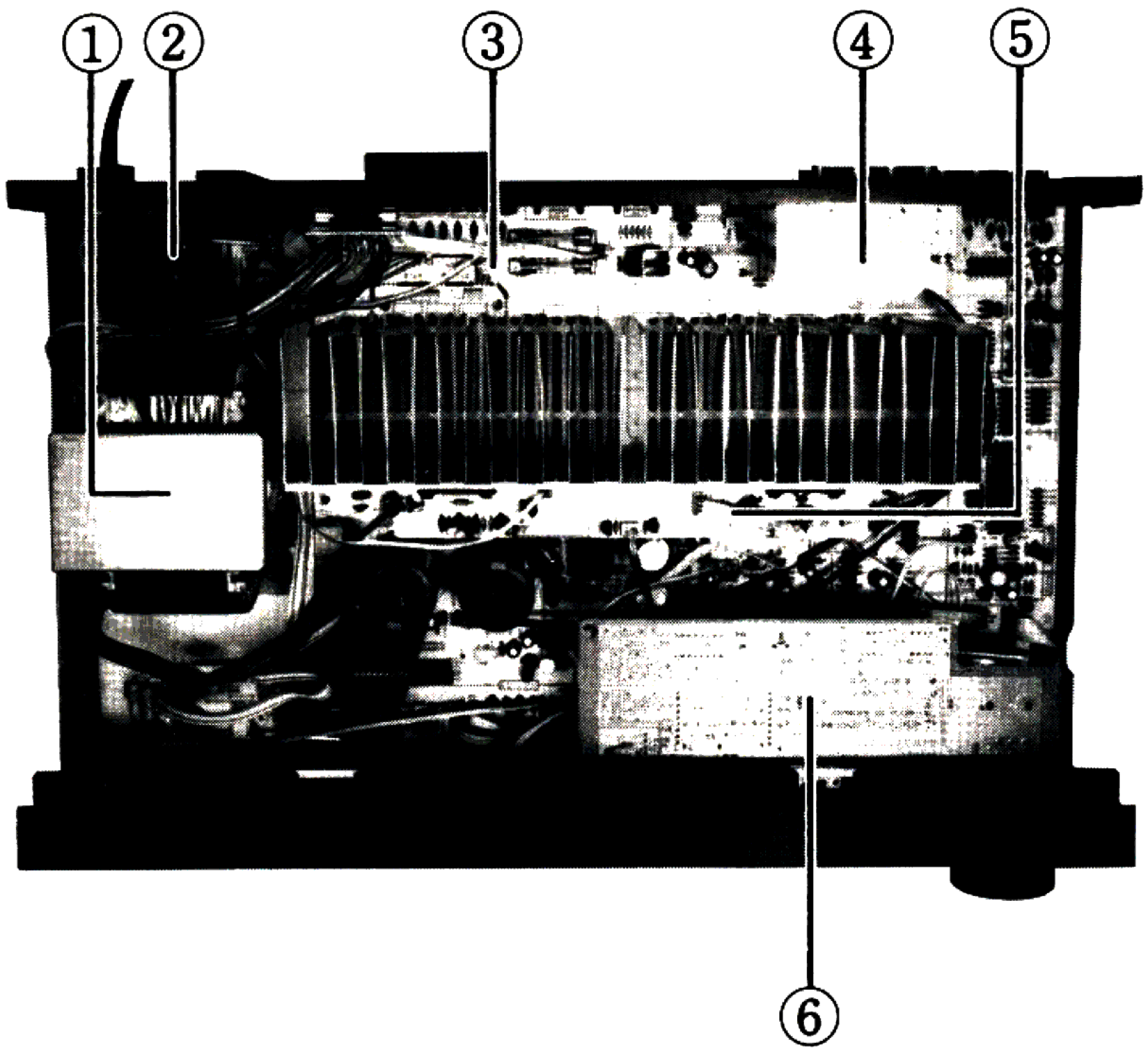
Weight 7.5kg
(16 lbs. 9 oz.)

CD/etc.: CD/VIDEO/TUNER/AUX/TAPE/VCR

(U) .... **U.S.A. Model**
(C) .... **Canadian Model**
(A) .... **Australian Model**
(H) .... **North European Model**
(B) .... **British Model**
(R) .... **General Model**

Specifications subject to change without notice.

INTERNAL VIEW



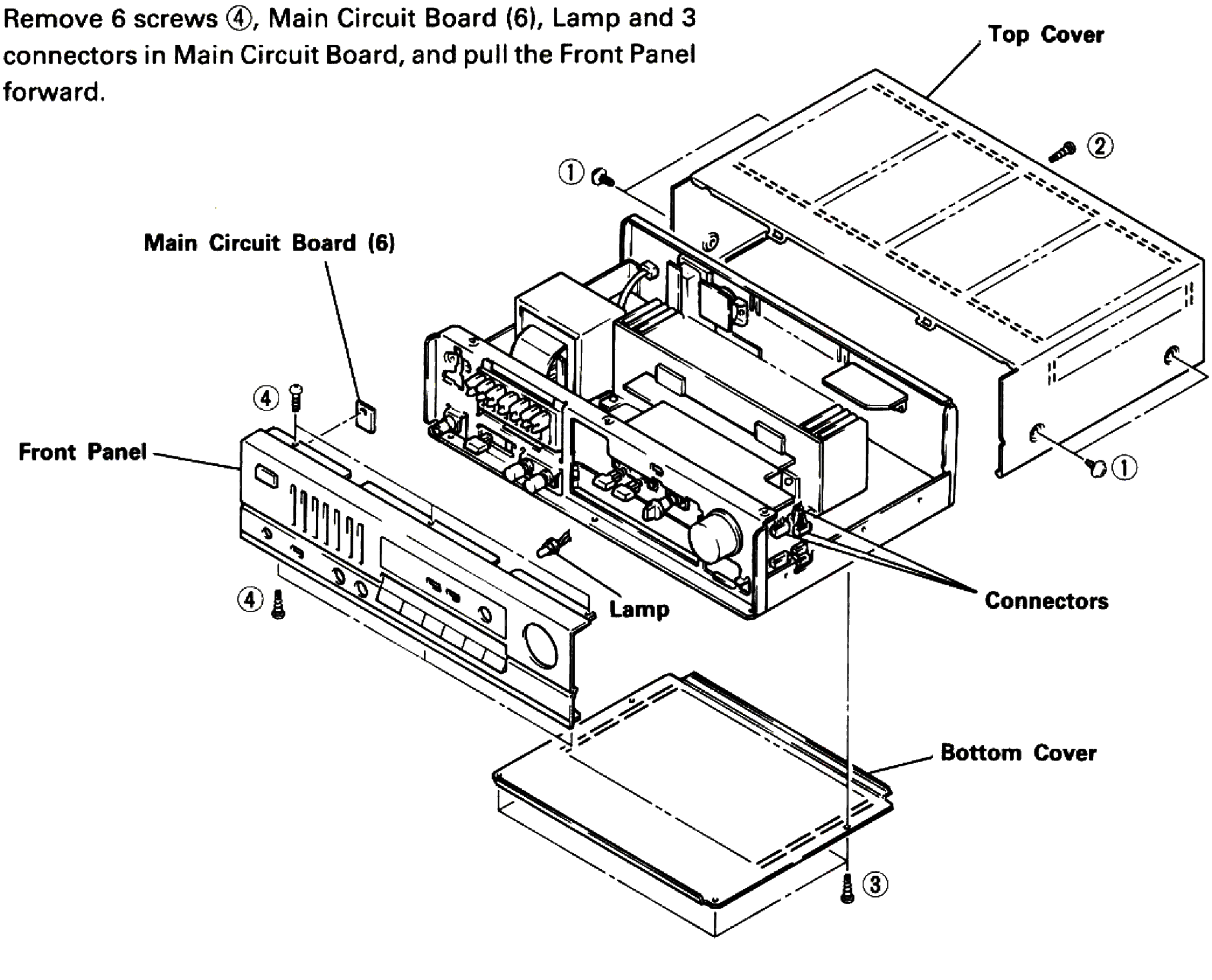
① POWER TRANSFORMER
U model : XD618A00
C model : XD619A00
R model : XD620010
A, B model : XD621A00
H model : XD622A00
② SUB CIRCUIT BOARD (3)
③ MAIN CIRCUIT BOARD (1)
④ MAIN CIRCUIT BOARD (3)
⑤ SURROUND CIRCUIT BOARD (2)
⑥ SURROUND CIRCUIT BOARD (1)

DISASSEMBLY PROCEDURES

1. Removal of Top Cover
Remove 4 screws ① and 1 screw ② in Fig. 1, and slide the Top Cover back.

2. Removal of Bottom Cover
Remove 4 screws ③ in Fig. 1.

3. Removal of Front Panel
Remove 6 screws ④, Main Circuit Board (6), Lamp and 3 connectors in Main Circuit Board, and pull the Front Panel forward.



■ ADJUSTMENT

1. IDLING CURRENT ADJUSTMENT

When replacing the power and drive transistors, adjust idling current. Turn ON the power in the no signal state and wait for two minutes before the adjustment.
Adjust VR103 (Lch) and VR104 (Rch) so that the voltage across the terminal of R253, R254 comes from 4.0mV to 6.0mV DC.

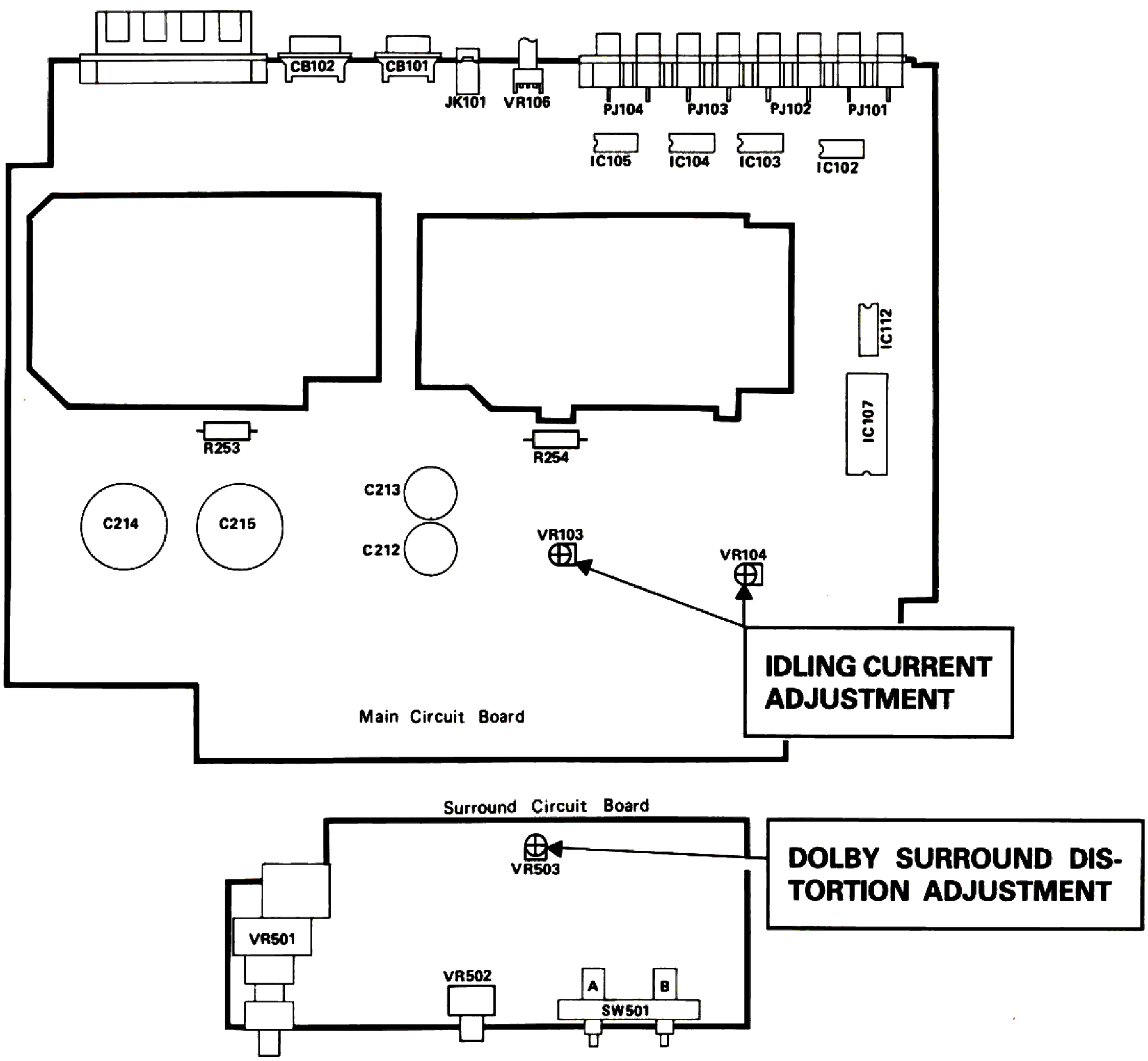
	Test Points	Adjustment points	Rating
Lch	Across the terminals of R253	VR103	4.0mV ~ 6.0mV DC
Rch	Across the terminals of R254	VR104	4.0mV ~ 6.0mV DC

2. DOLBY SURROUND DISTORTION ADJUSTMENT

When replacing the power and drive transistors, adjust dolby surround distortion.
Turn ON the power in the no signal state and wait for two minutes before the adjustment.
Set the Rear level VR so that the output voltage at either channel of 1kHz, 150mV. (Main VR: Maximum) Then adjust VR503 to make the distortion minimum.

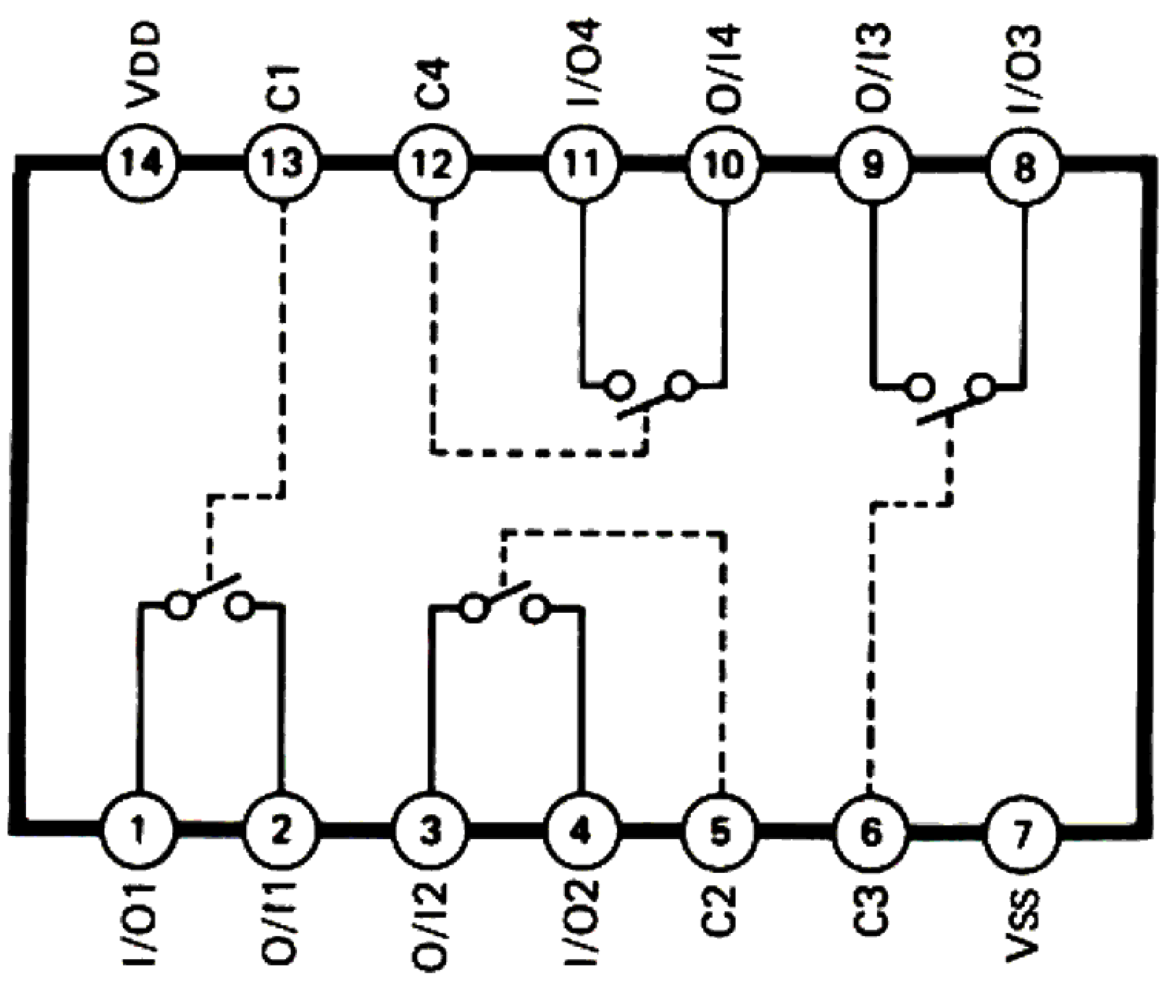
Input	Adjustment point	Test Point	Rating
Input : 1kHz 150mV/Either channel	VR503	Rear Speaker Terminal	Minimum

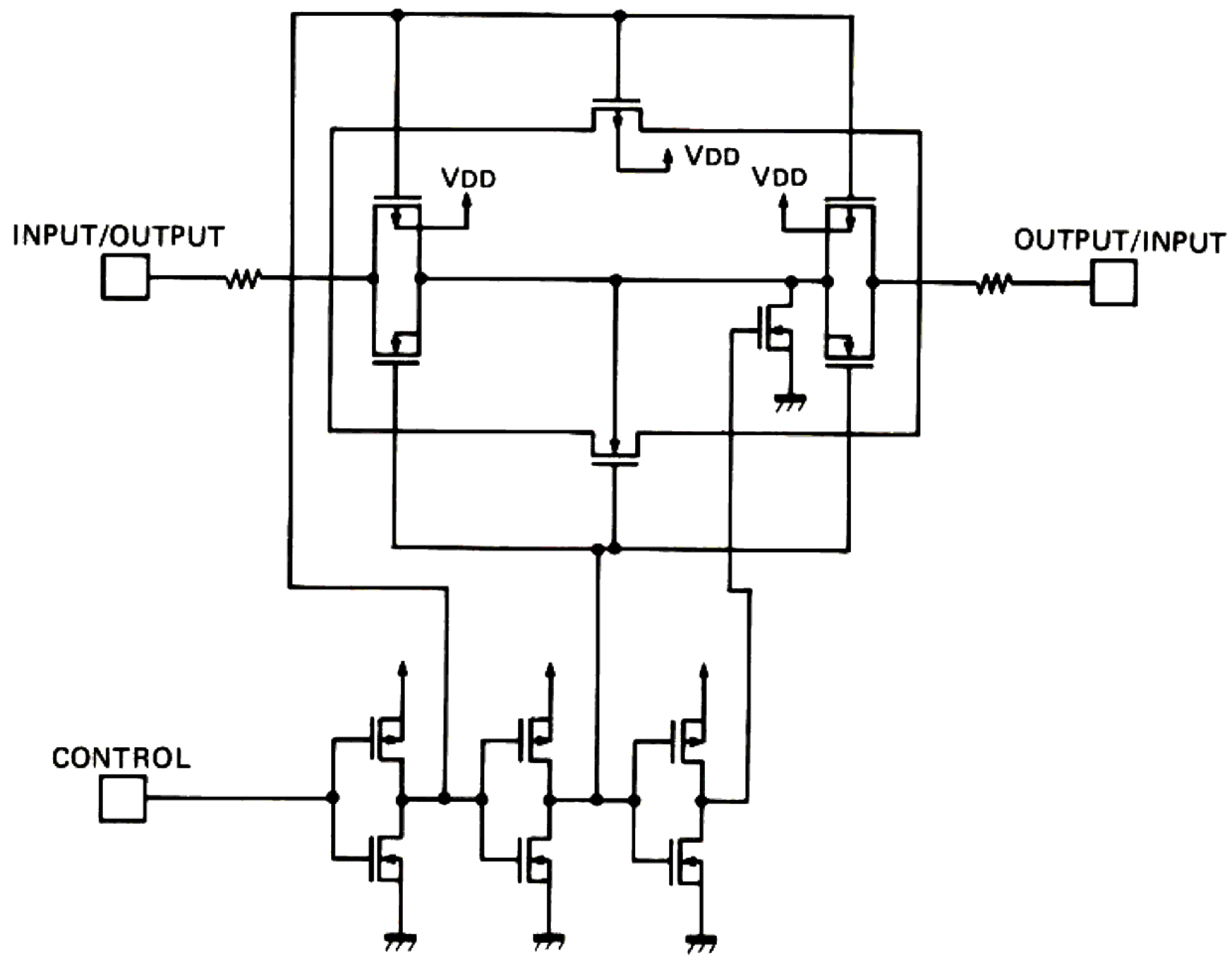
● TEST POINTS



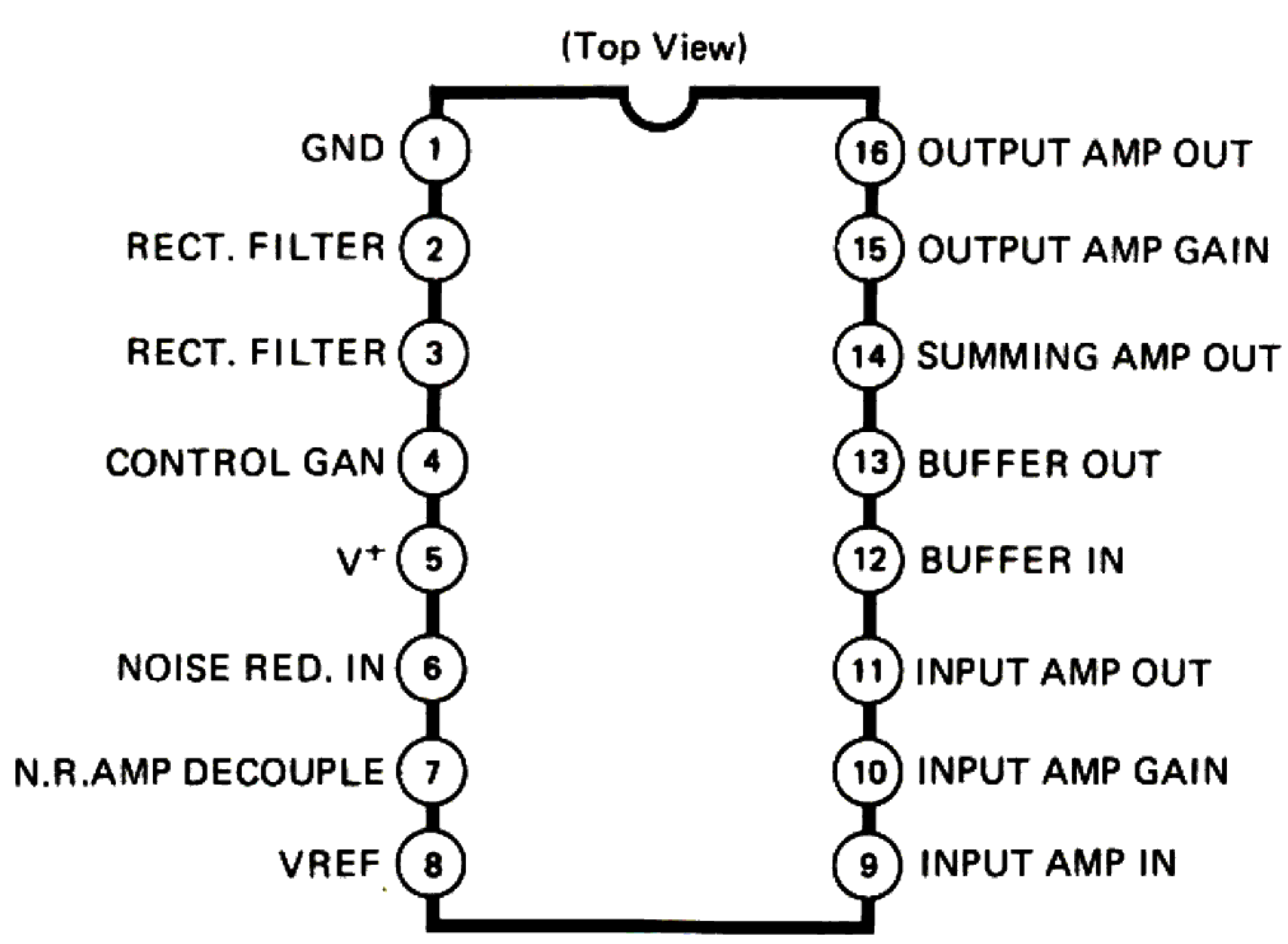
IC BLOCK/CIRCUIT DATA

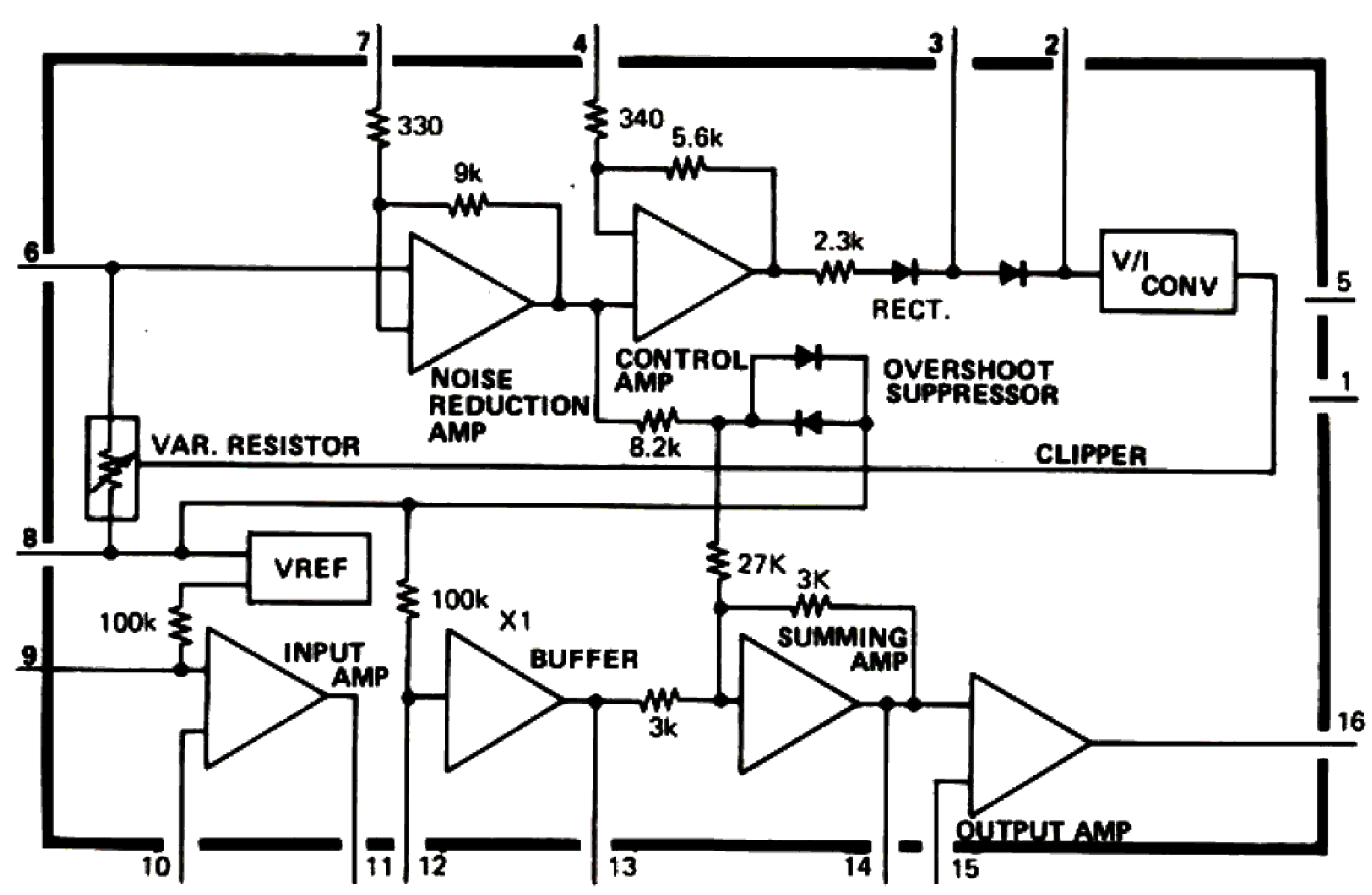
●IC102 ~ 106 : BU4066B, LC4066B, M4066PB, MN4066B (QUADRUPLE BILATERAL SWITCH)



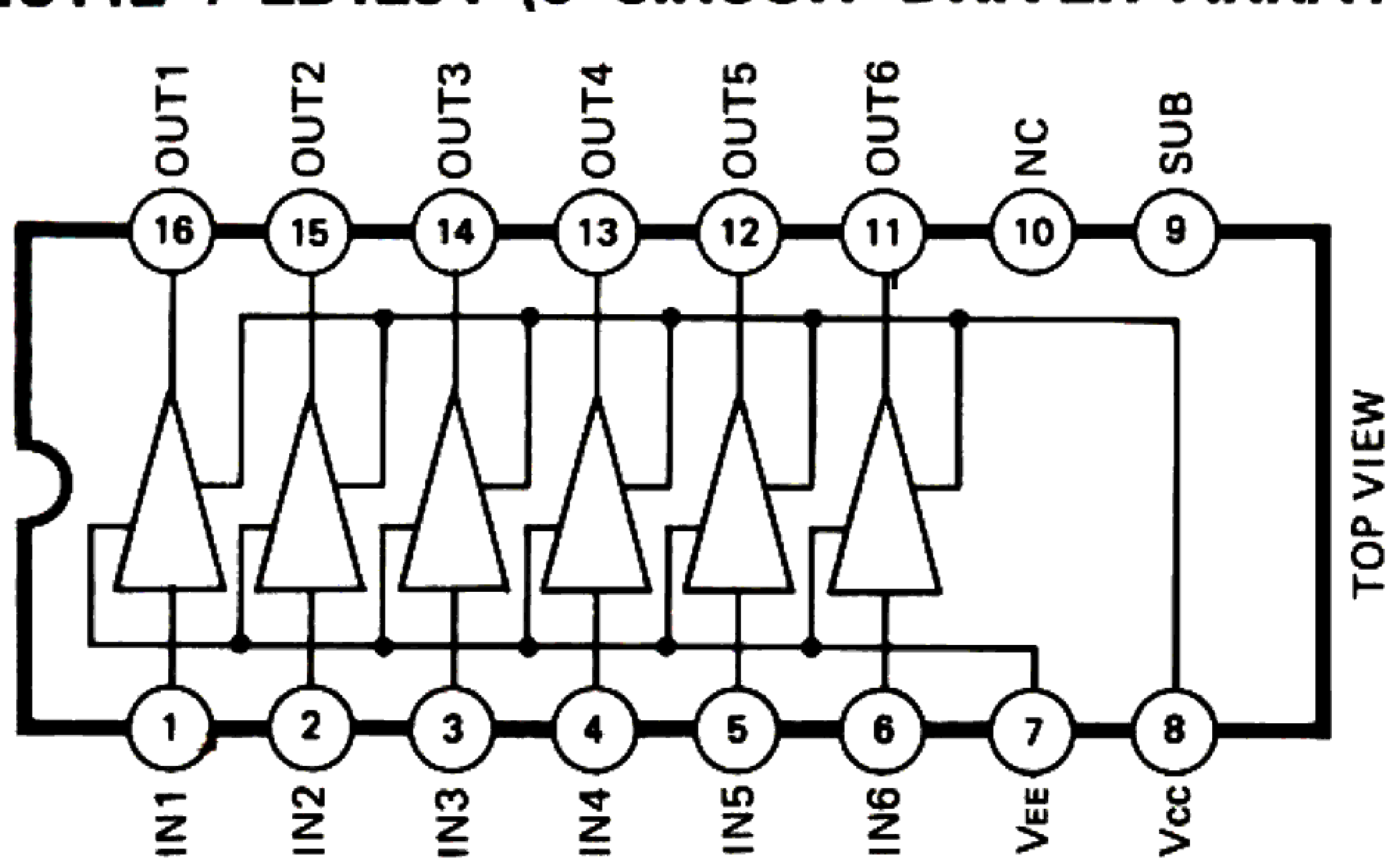


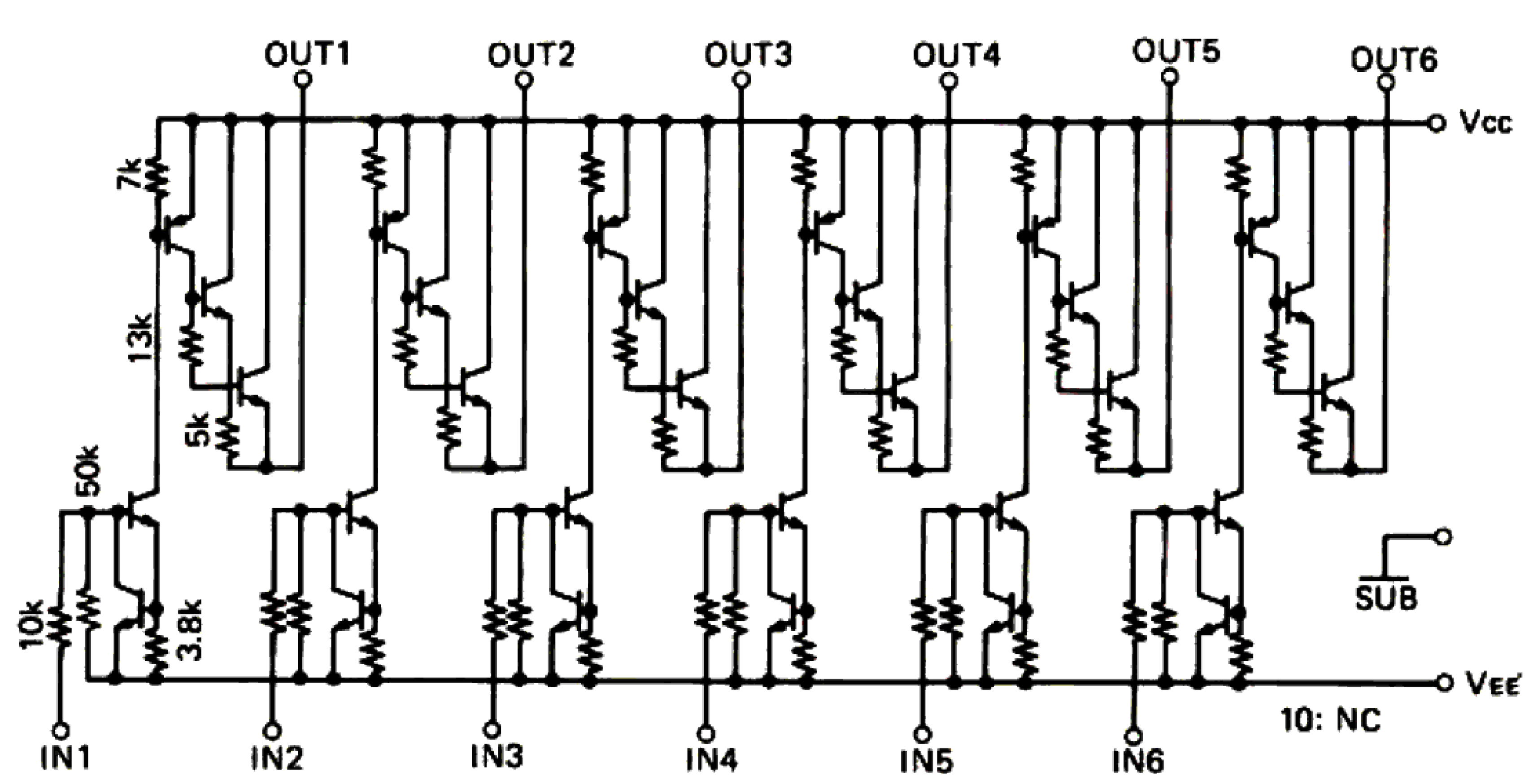
●IC505 : LA2730 (DOLBY IC)



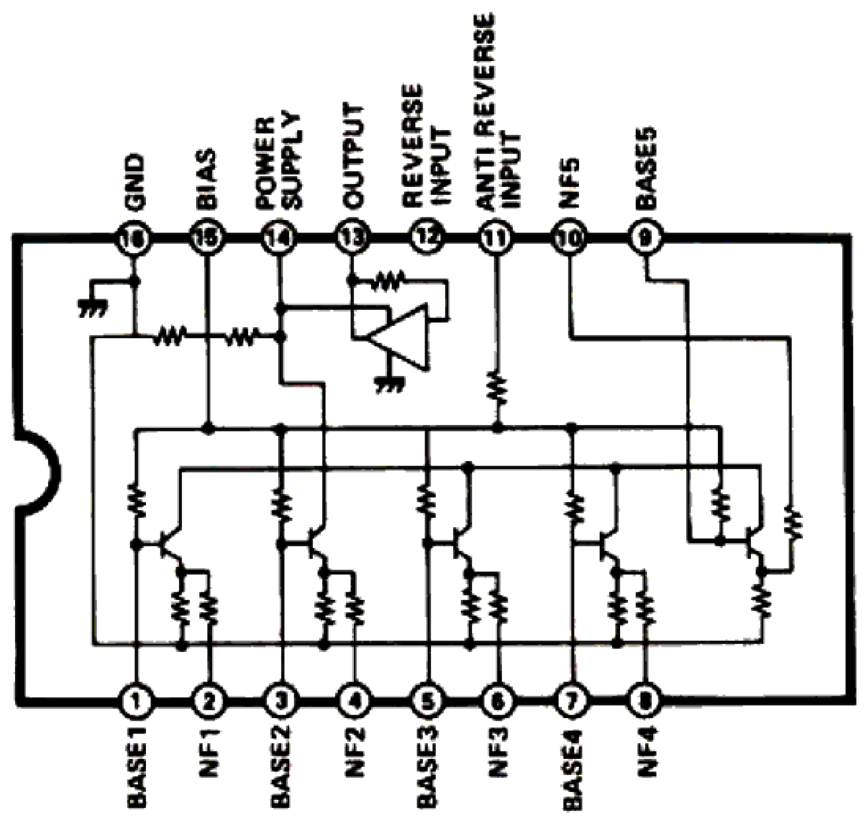


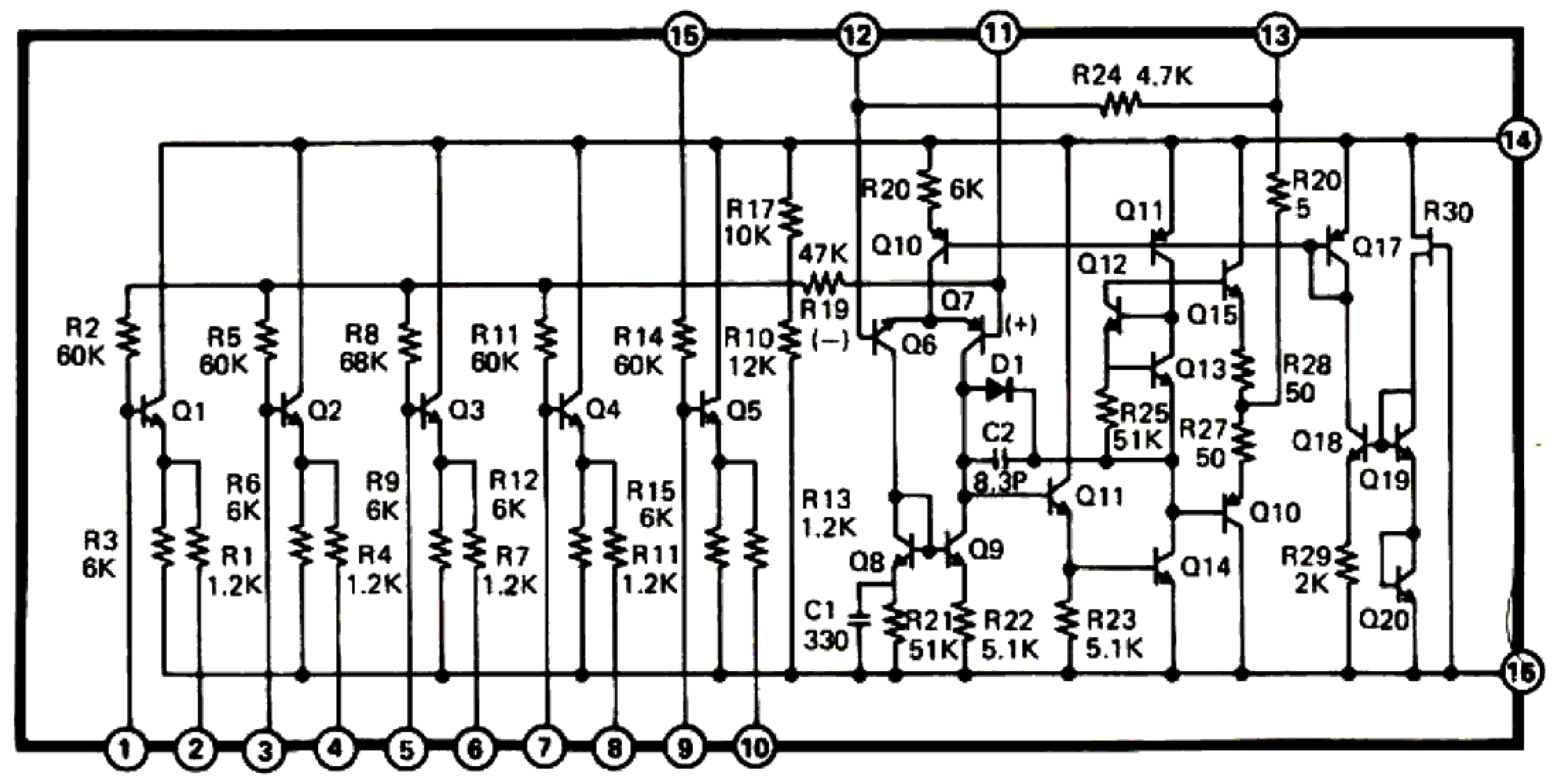
●IC112 : LB1294 (6 CIRCUIT DRIVER ARRAY)



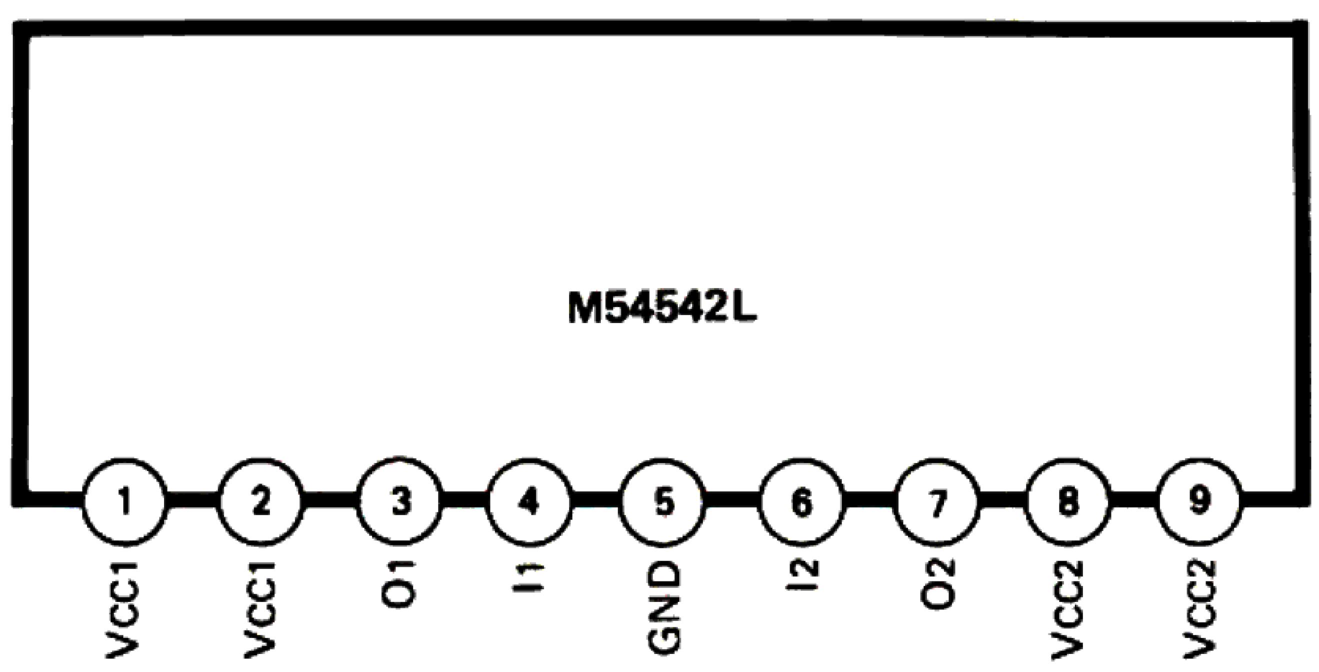


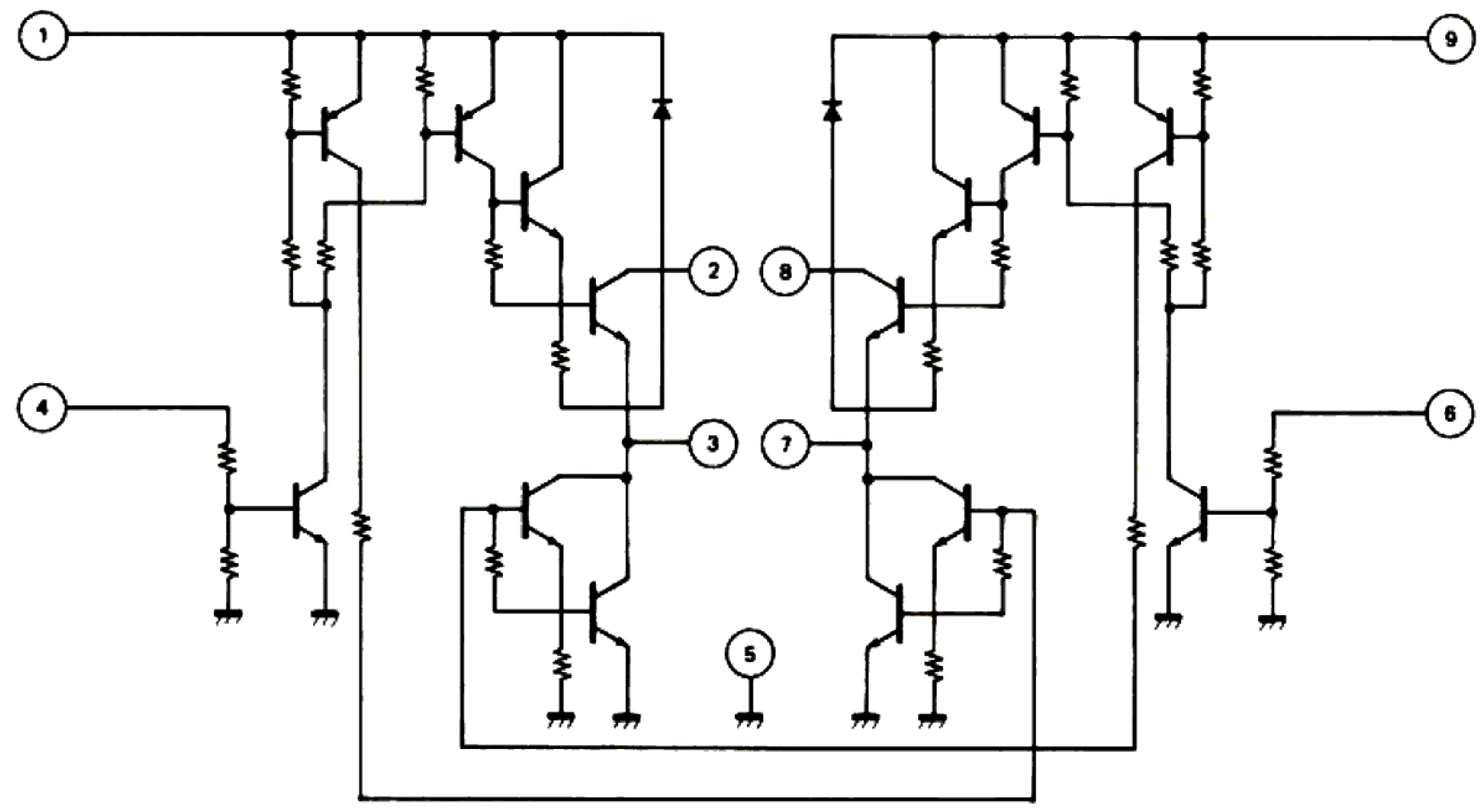
●IC109, IC110 : M5226P (5 ELEMENT GRAPHIC EQUALIZER AMP. 1ch)



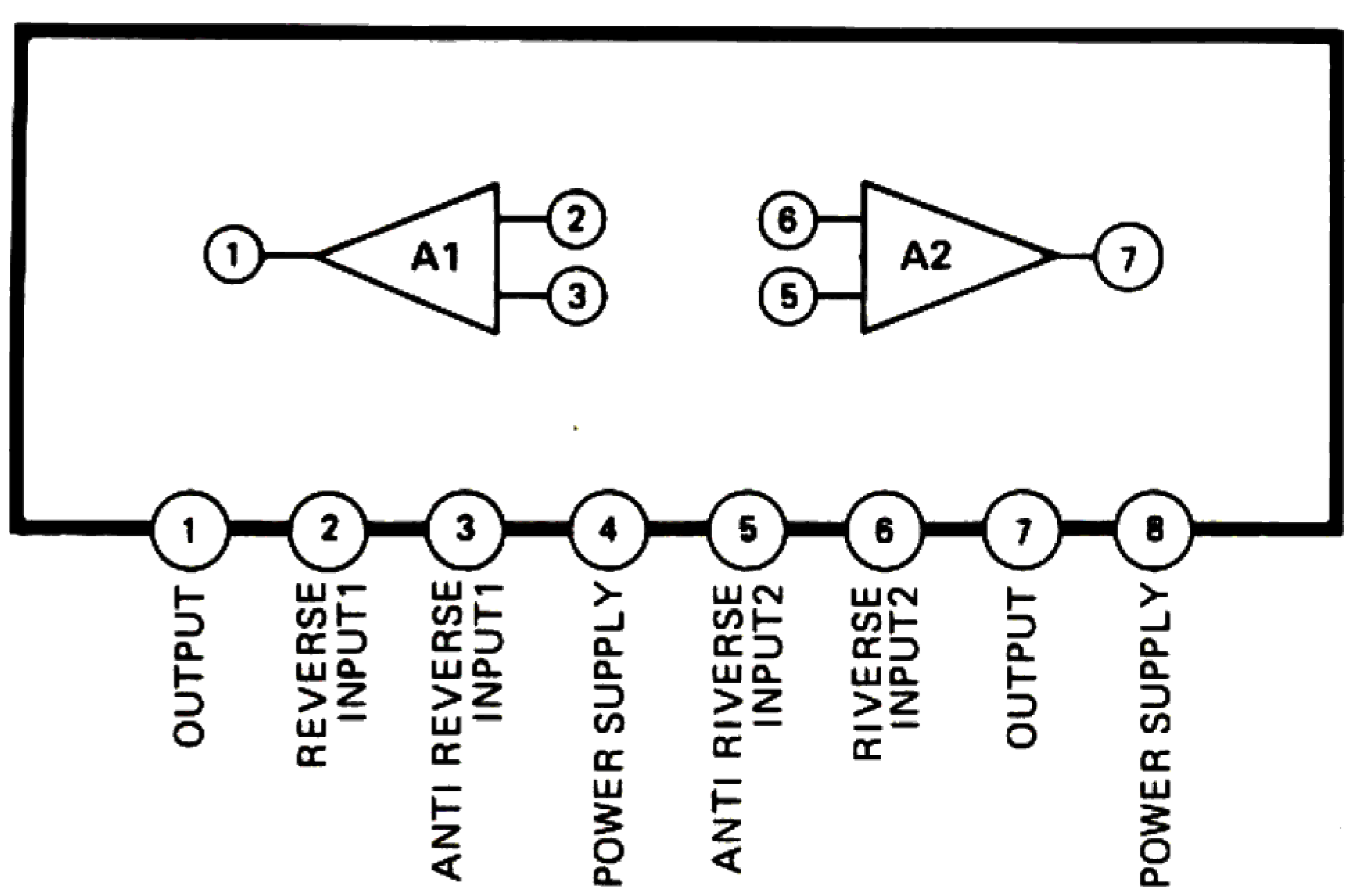


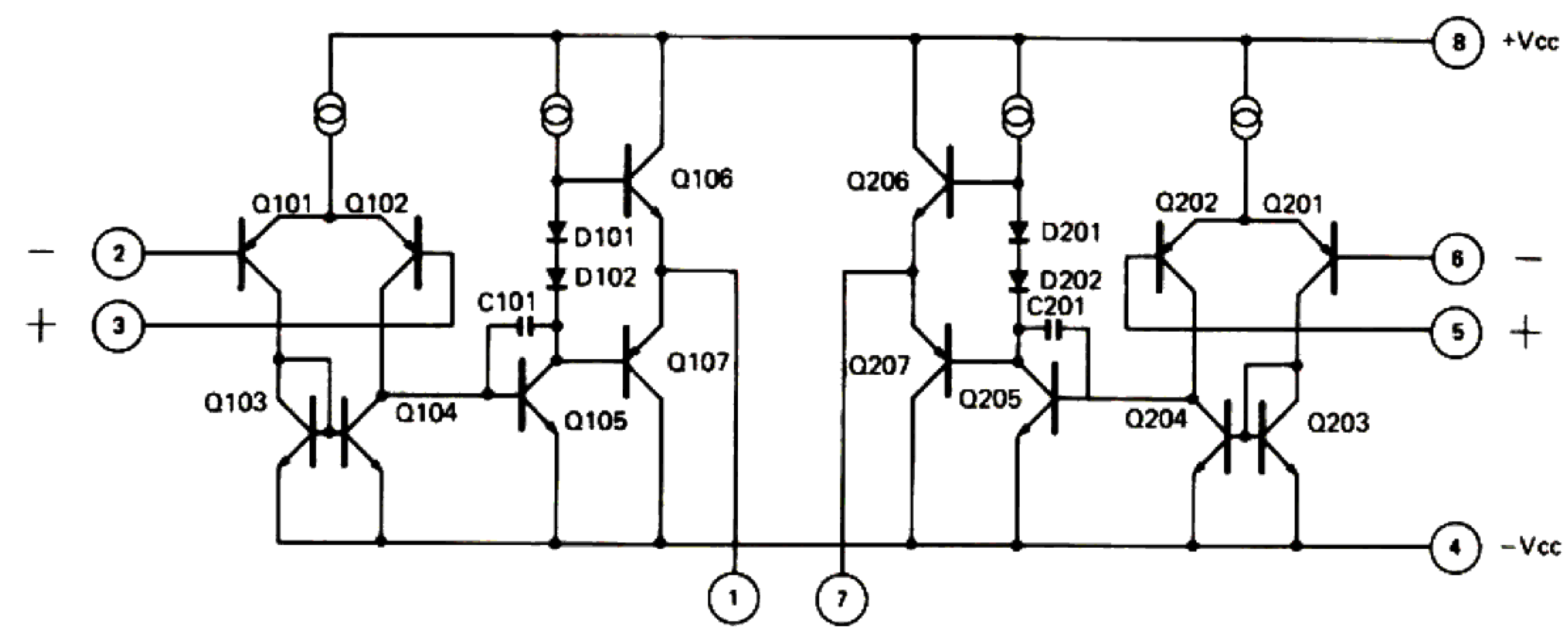
●IC108 : M54542 (REVERSE SMALL MOTOR DRIVER IC)



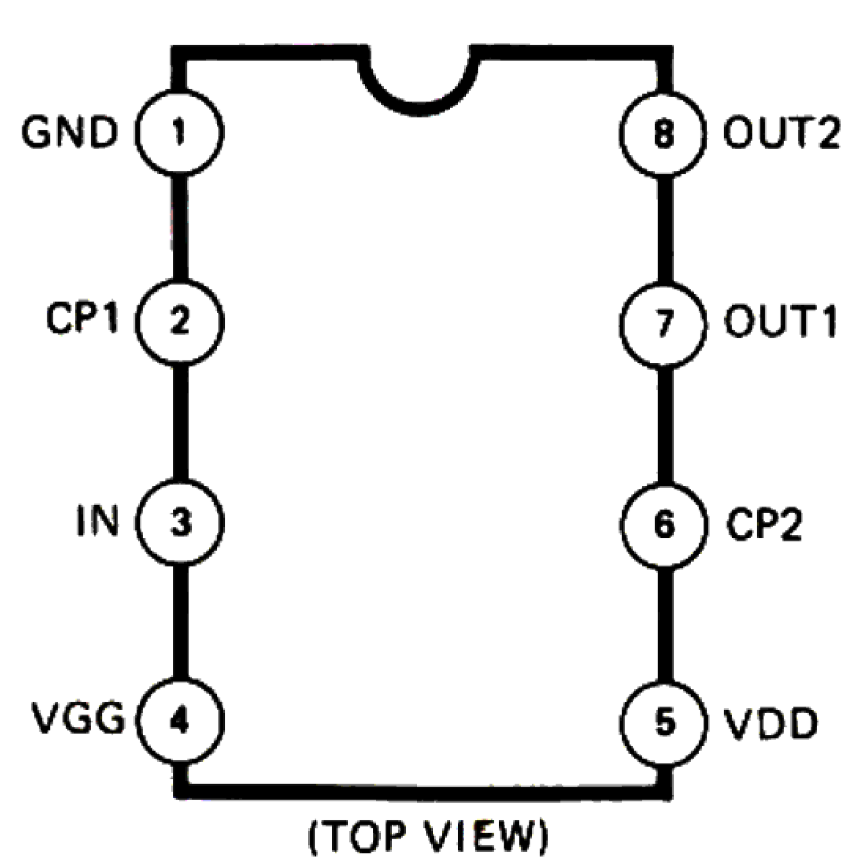


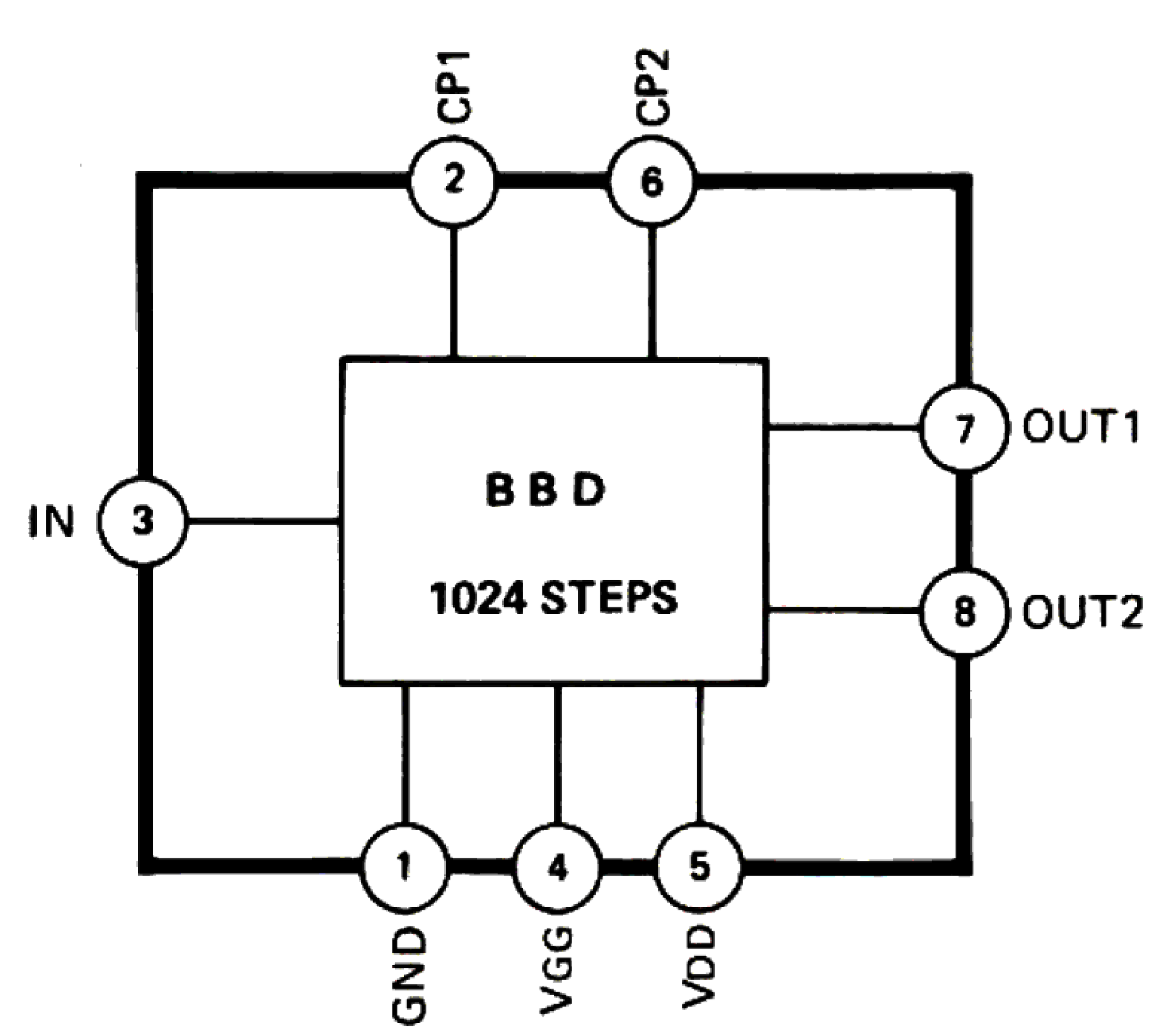
●IC101, 111 : M5218LV (DUAL LOW NOISE OPERATION AMP.)



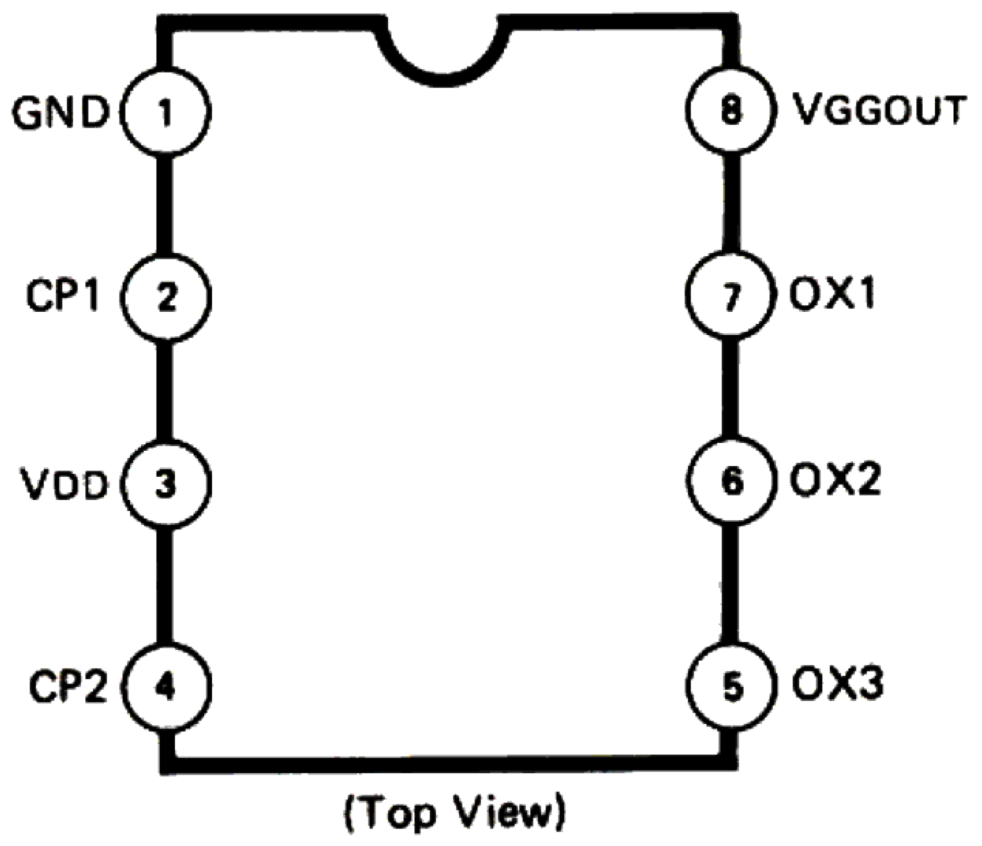


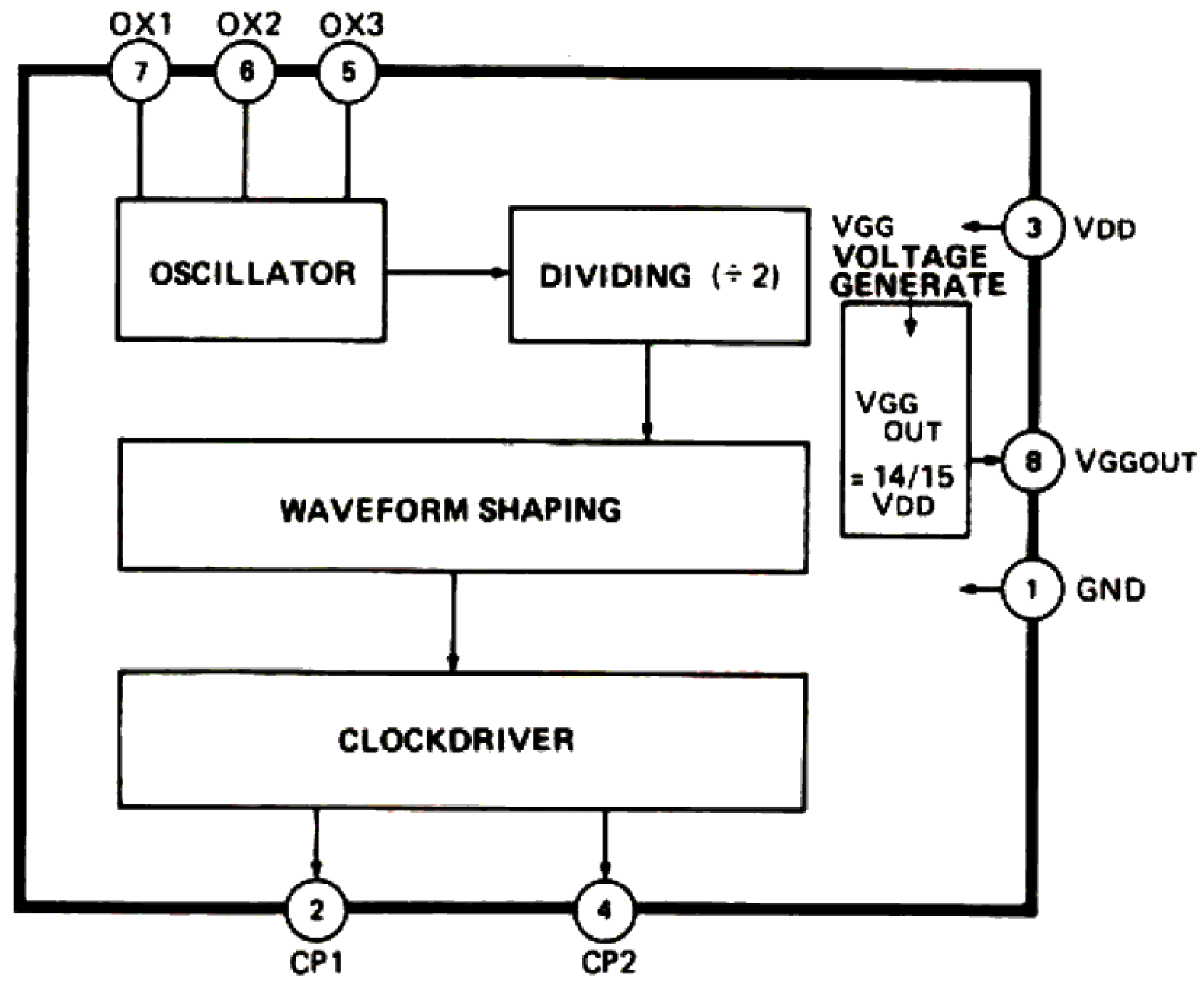
●IC504 : MN3007Y (AUDIO SIGNAL DELAY ELEMENT)



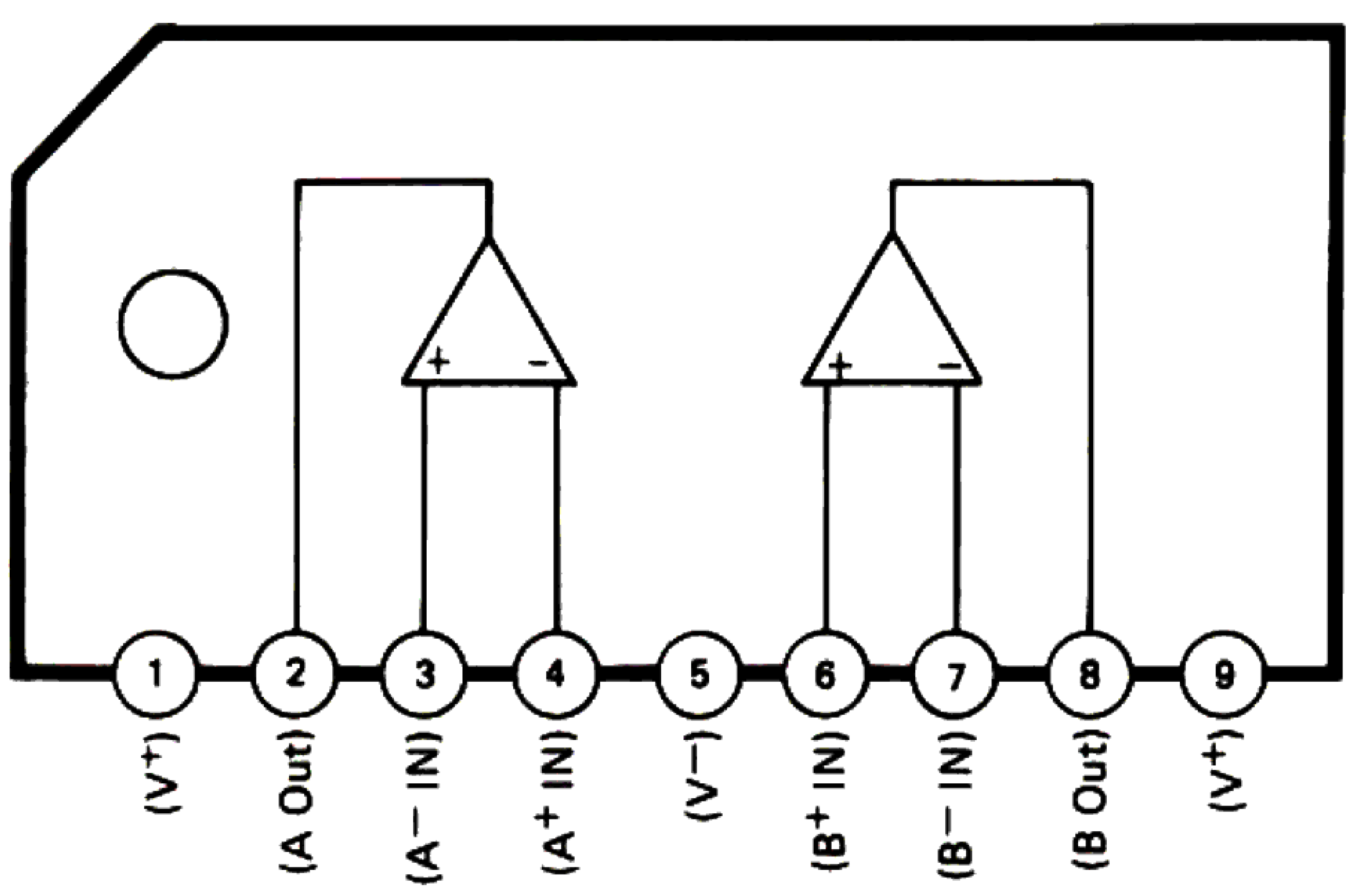


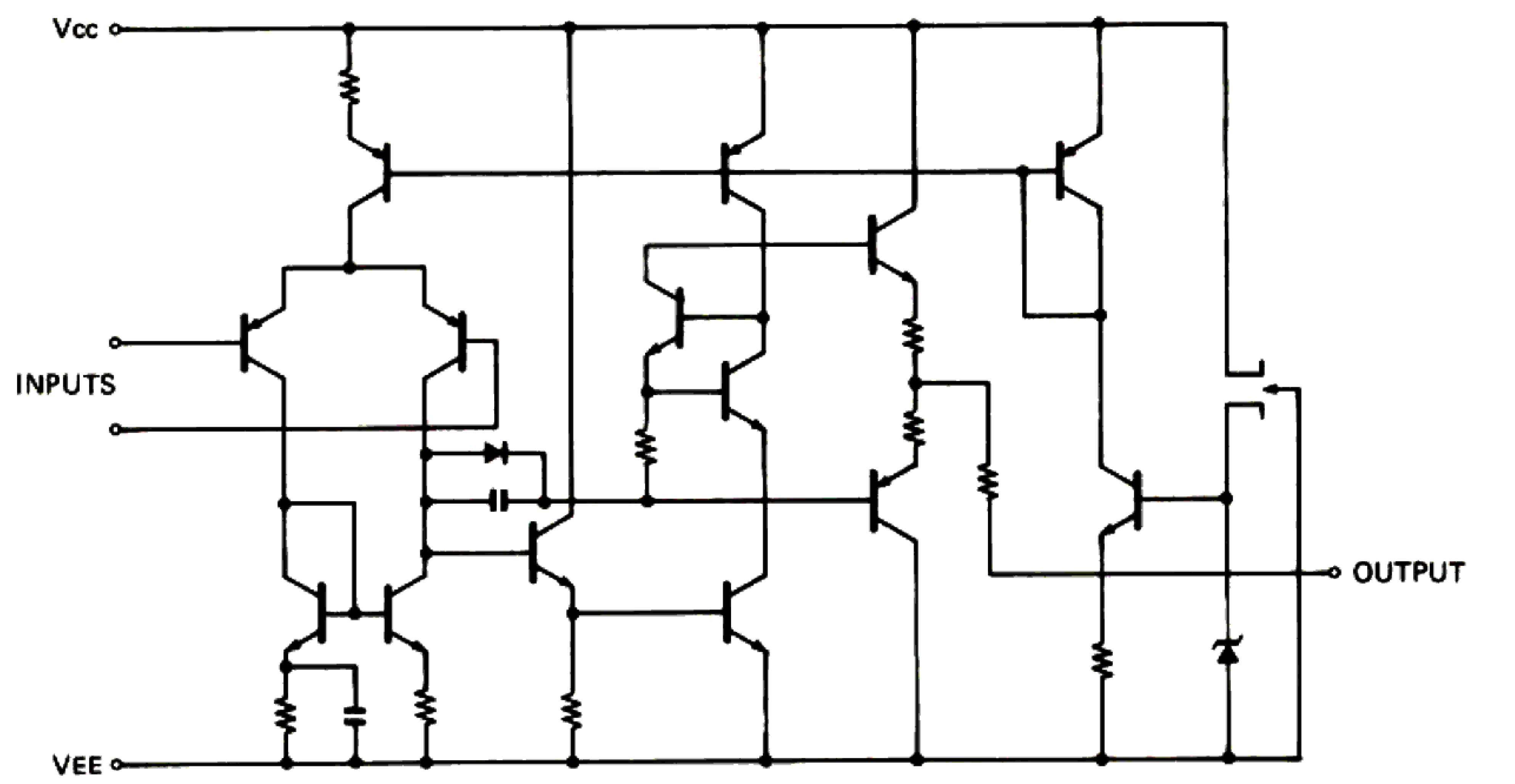
● IC503 : MN3101 (DELAY TIME CONTROLLER)



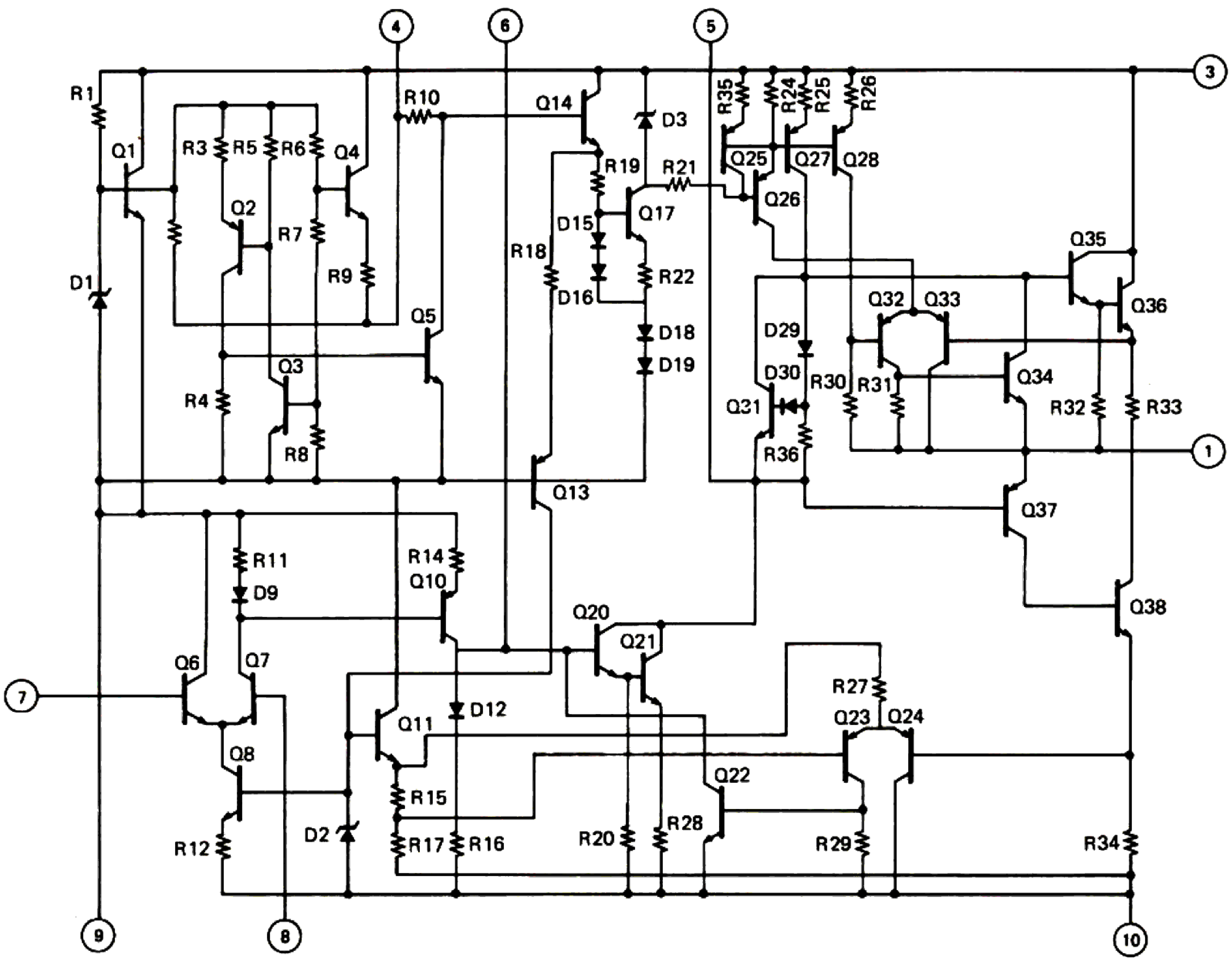


● IC502, 508 : NJM45585 (DUAL OPE-AMP.)

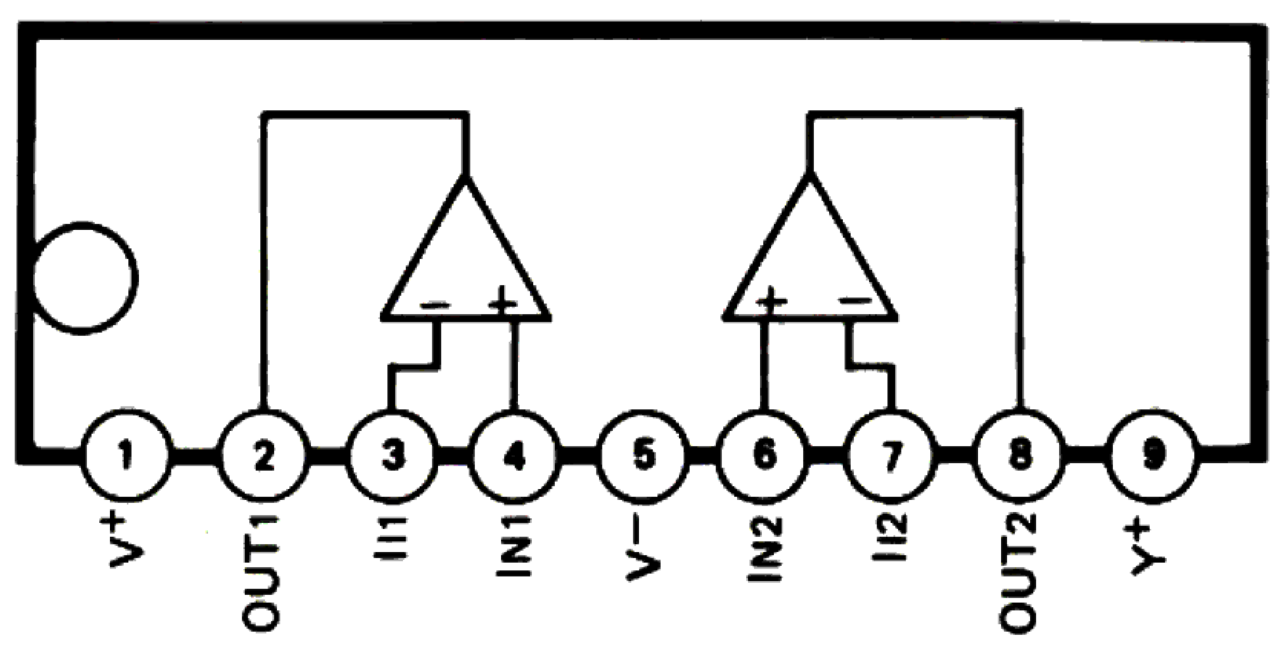


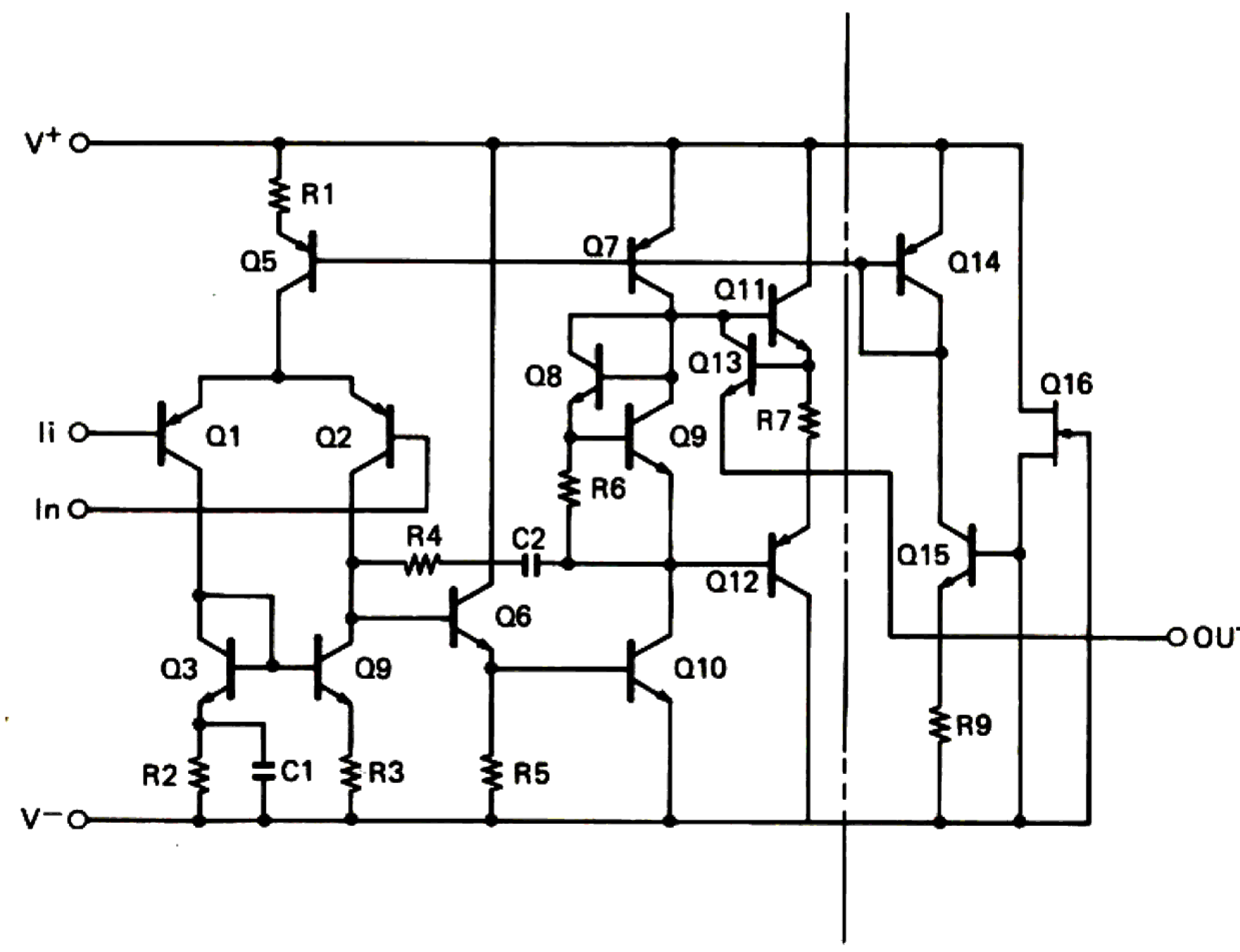


● IC506, 507 : μPC1188H

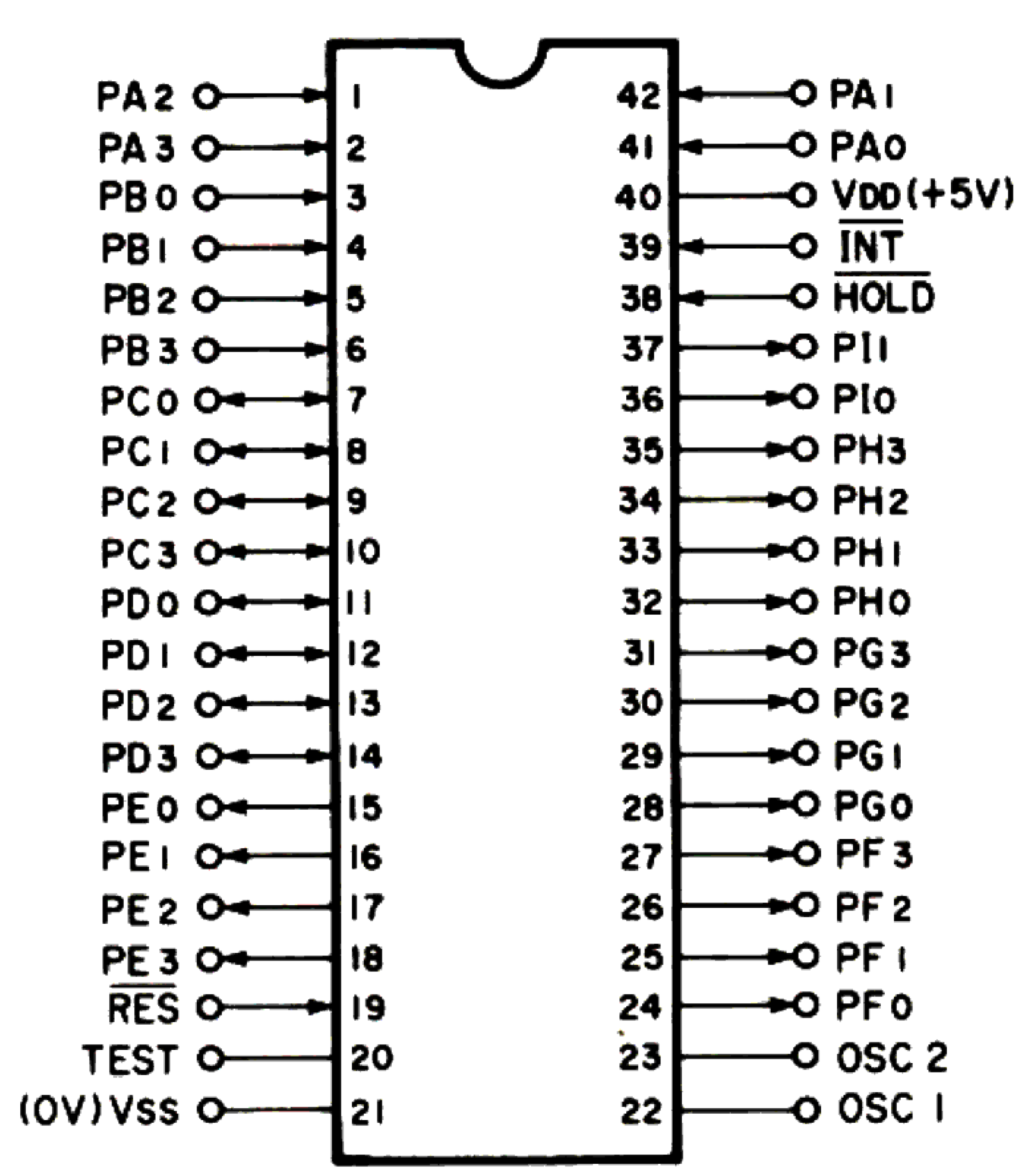


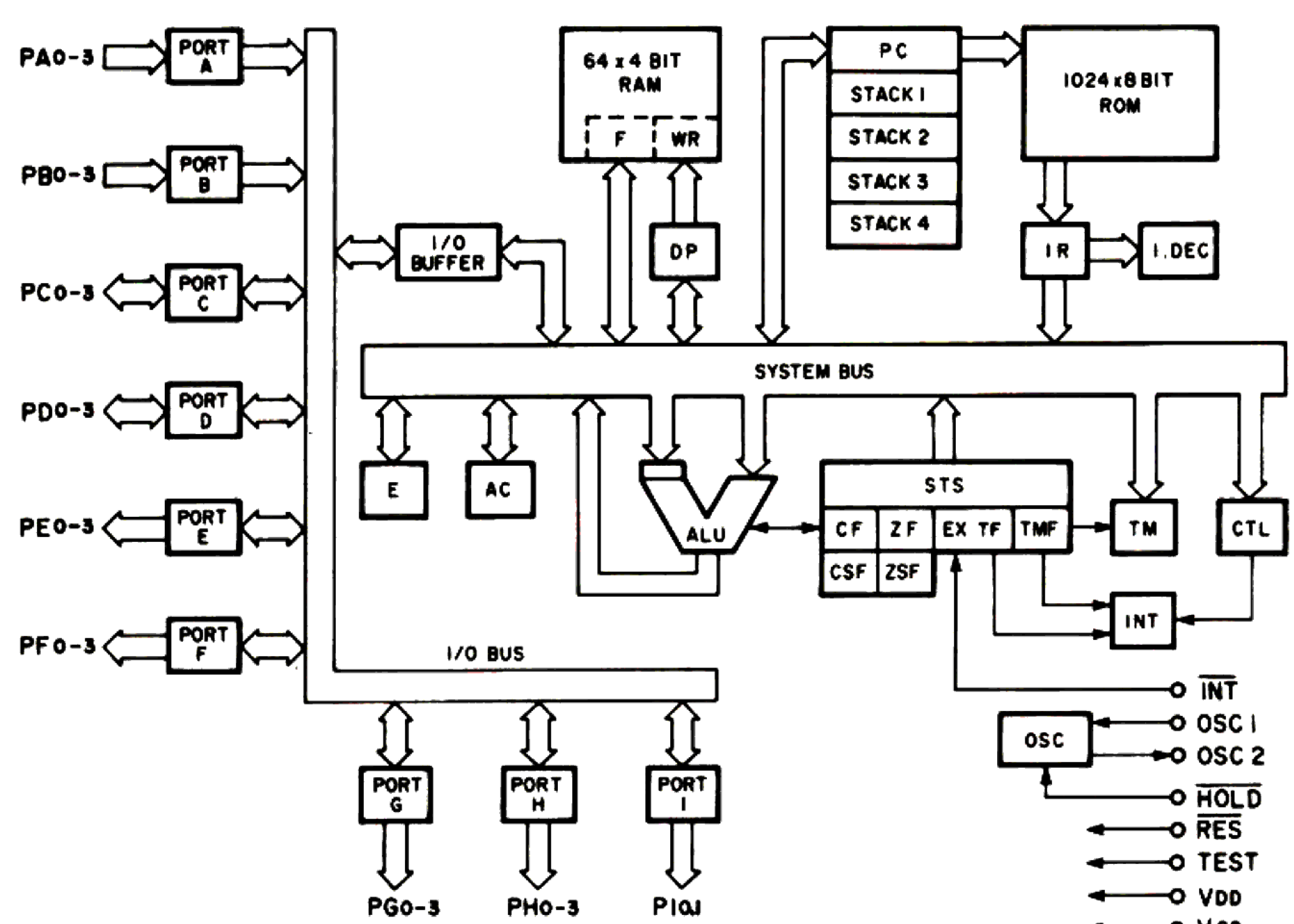
●IC501 : μPC4570HA (DUAL OPE AMP.)





●IC107 : LC6505C−3525 (4 BIT μ-COM)



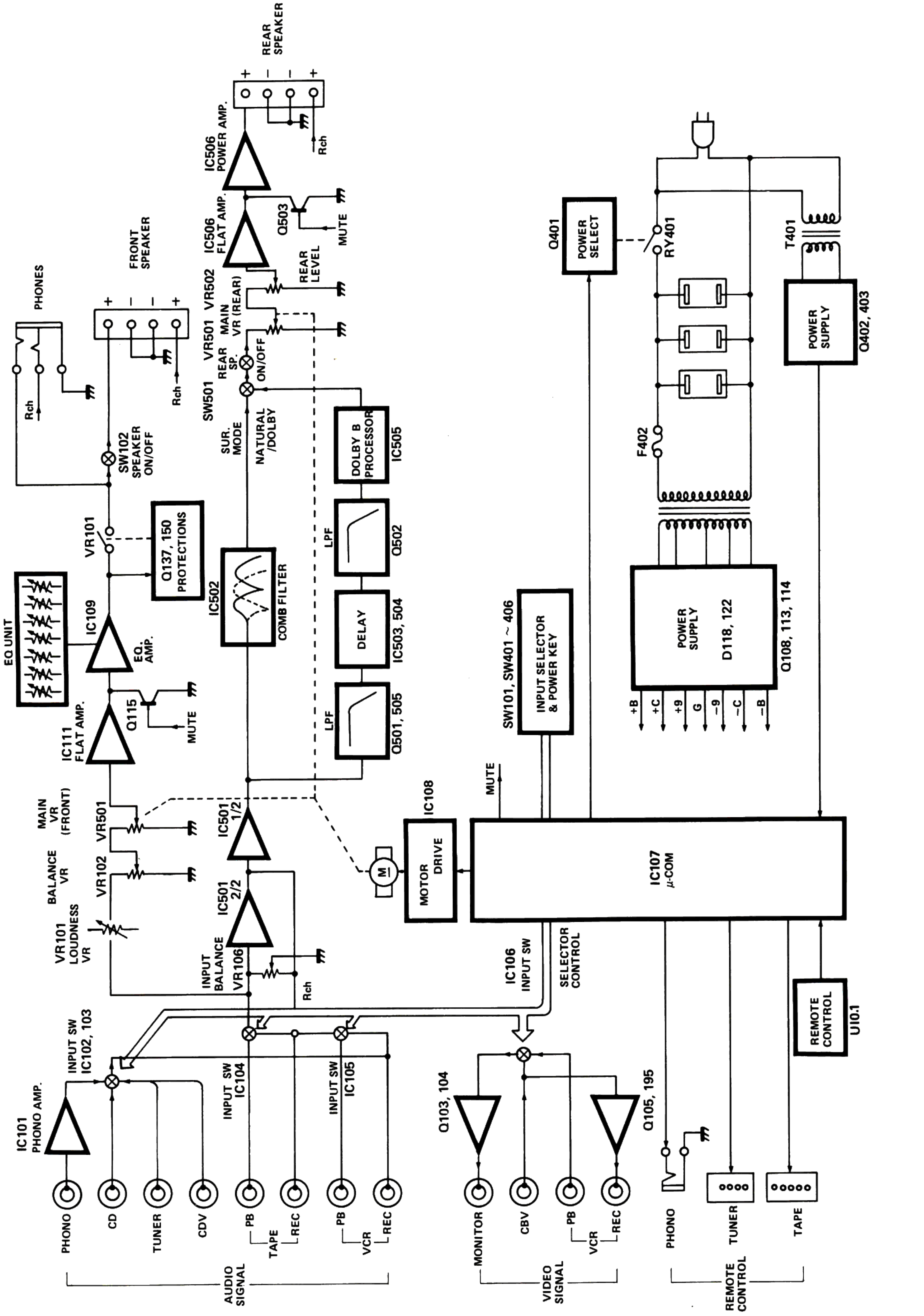


■ μ-COM DATA

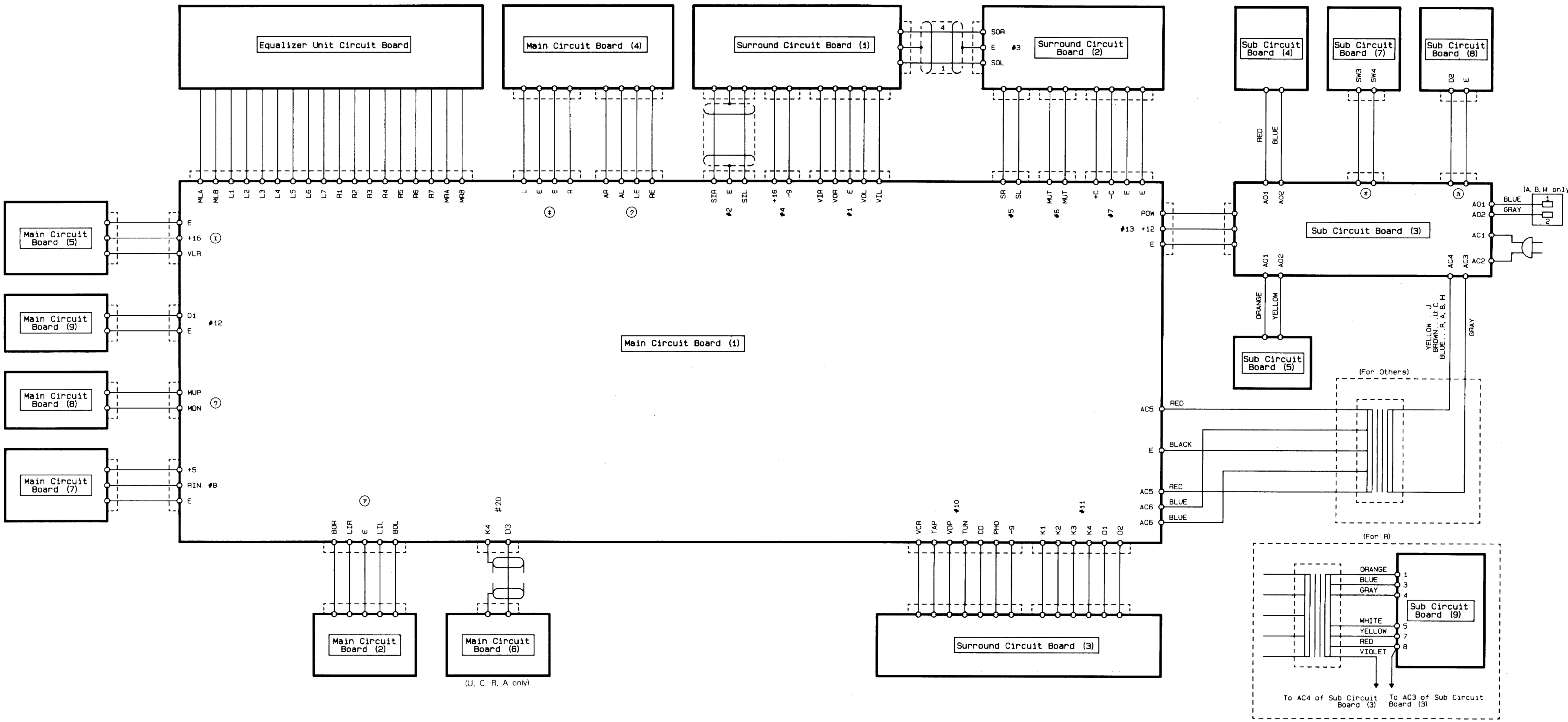
● IC107 : LC6505C-3525

NO.	NAME	I/O	FUNCTION
1	PA2	I	N.C. (L level connect)
2	PA3	I	H Level (TAPE MONITOR)
3	PB0	I	K1 } Key input (Key on : H)
4	PB1	I	K2
5	PB2	I	K3
6	PB3	I	K4
7	PC0	I/O	D1 } Key scan signal (Active H)
8	PC1	I/O	D2
9	PC2	I/O	D3
10	PC3	I/O	PL0 PHONO PLAY/CUT control signal
11	PD0	I/O	N.C.
12	PD1	I/O	CD0 } CD control signal
13	PD2	I/O	CD1
14	PD3	I/O	CD2
15	PE0	O	TP0 } Deck control signal
16	PE1	O	TP1
17	PE2	O	TP2
18	PE3	O	TP3
19	$\overline{RES}$	I	Reset input
20	TEST	—	LSI Test Terminal (GND)
21	V_{ss}	—	GND
22	OSC1	I	} Microcomputer clock circuit 400kHz
23	OSC2	O	
24	PF0	O	PHONO } Function Control H: ON L: OFF
25	PF1	O	CD
26	PF2	O	TUNER
27	PF3	O	VDP
28	PG0	O	TAPE (MONITOR)
29	PG1	O	VCR (MONITOR)
30	PG2	O	(TAPE 2 (MONITOR)) ··· N.C.
31	PG3	O	POWER control signal (ON : H)
32	PH0	O	Volume Up } Control signal
33	PH1	O	Volume Down
34	PH2	O	TU2 } Tuner control signal
35	PH3	O	TU1
36	PI0	O	$\overline{AMUTE}$ Audio Muting control signal (Active L)
37	PI1	O	$\overline{Mute}$ Muting control signal (Active L)
38	$\overline{HOLD}$	I	Microcomputer backup cotrol (Backup : L, Play : H)
39	$\overline{INT}$	I	+5V
40	V_{DD}	—	+5V
41	PA0	I	Remotecontrol data input
42	PA1	I	POWER ON/OFF backup (H : backup, L : Ever ON)

■ BLOCK DIAGRAM

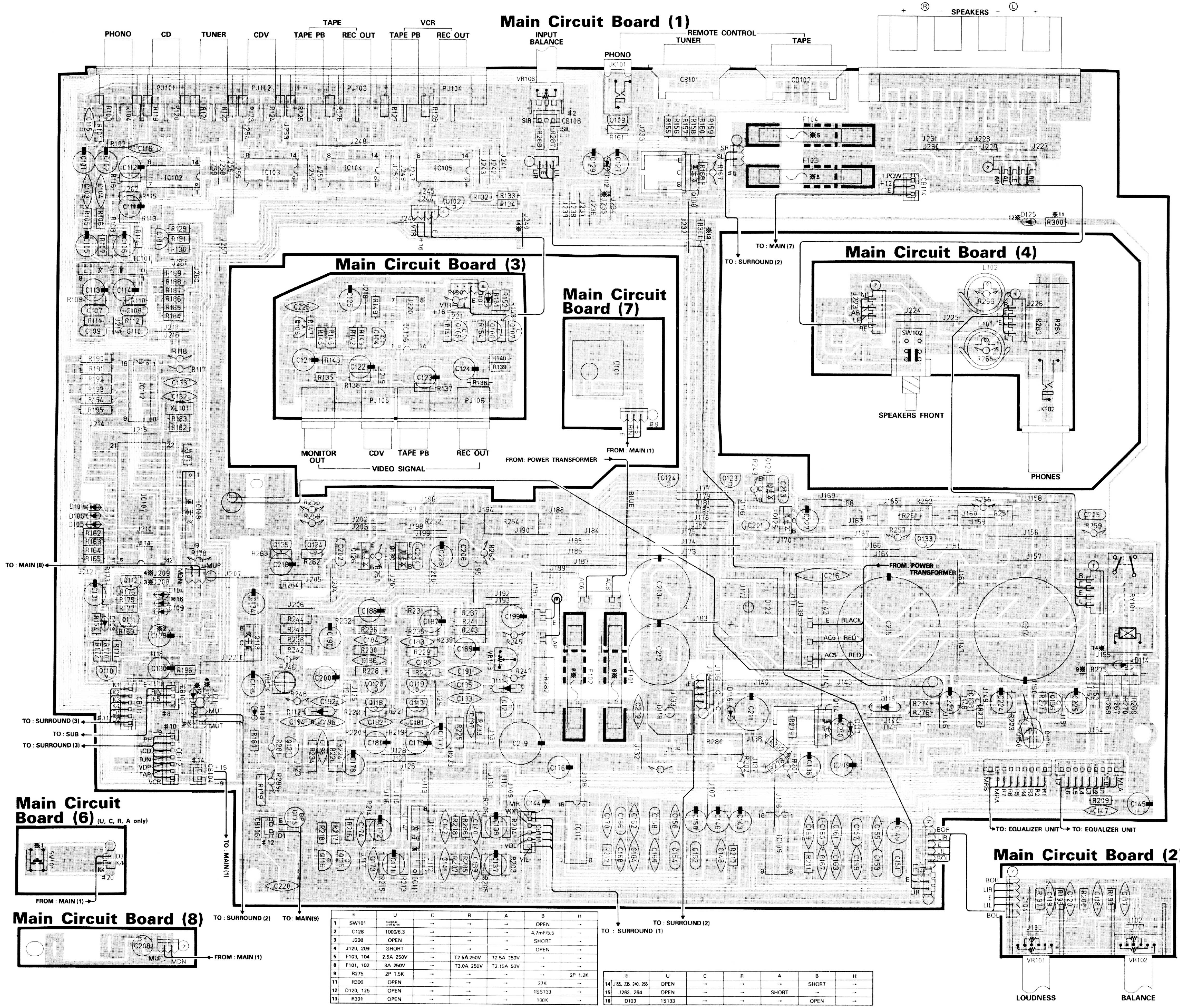


■ WIRING



Equalizer Unit Circuit Board
Main Circuit Board (4)
Surround Circuit Board (1)
Surround Circuit Board (2)
Sub Circuit Board (4)
Sub Circuit Board (7)
Sub Circuit Board (8)
Main Circuit Board (5)
Main Circuit Board (9)
Main Circuit Board (8)
Main Circuit Board (7)
Main Circuit Board (1)
Sub Circuit Board (3)
Sub Circuit Board (5)
Main Circuit Board (2)
Main Circuit Board (6)
(U, C, R, A only)
Surround Circuit Board (3)
(A, B, H only)
(For Others)
(For R)
Sub Circuit Board (9)
To AC4 of Sub Circuit Board (3)
To AC3 of Sub Circuit Board (3)

■ PRINTED CIRCUIT BOARD (Pattern Side) ※ 文字面：Component Side



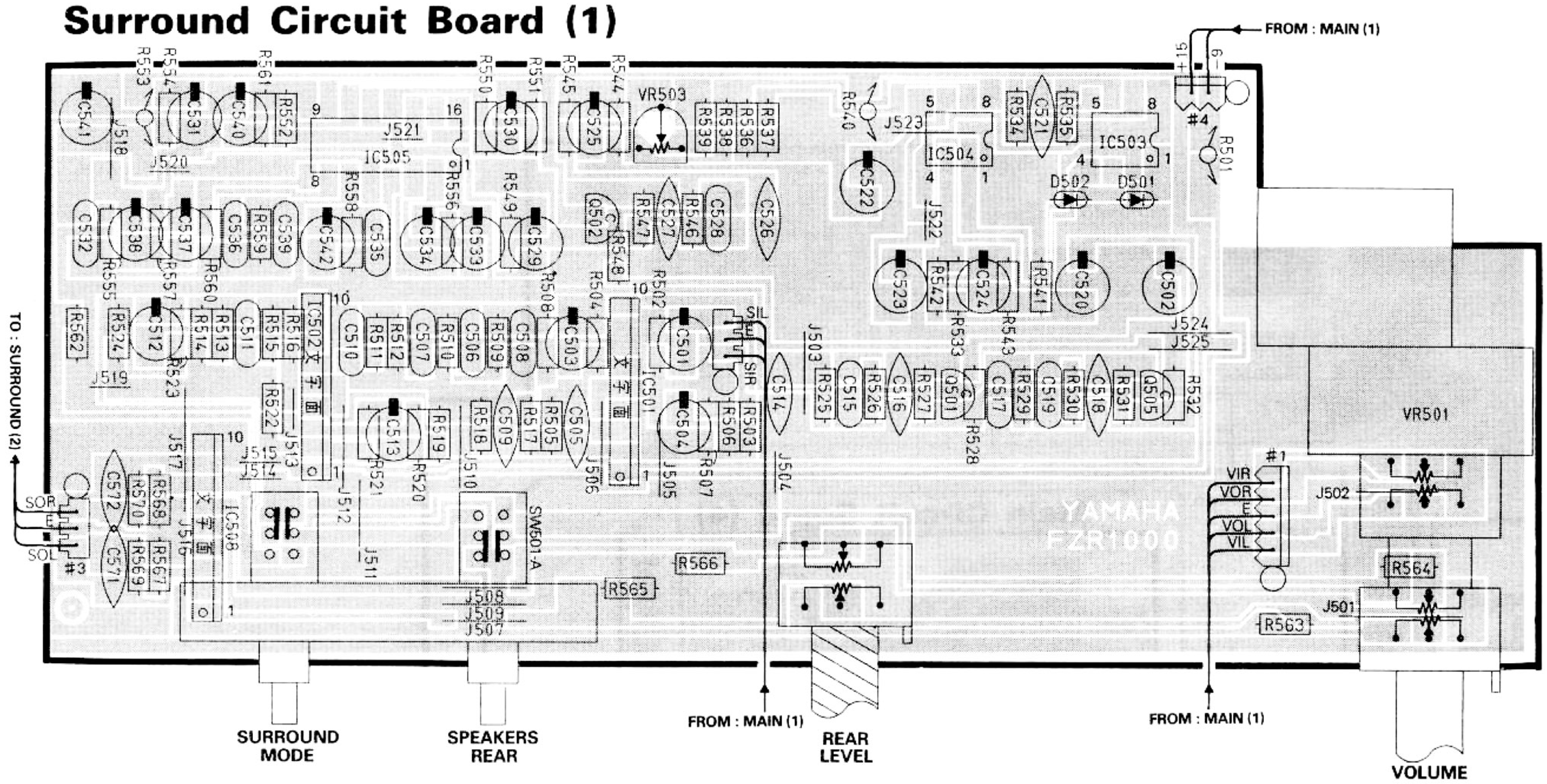
	※	U	C	R	A	B	H
1	SW101	[illegible]	→	→	→	OPEN	→
2	C128	1000/6.3	→	→	→	4.7mF/5.5	→
3	J208	OPEN	→	→	→	SHORT	→
4	J120, 209	SHORT	→	→	→	OPEN	→
5	F103, 104	2.5A 250V	→	T2.5A 250V	T2.5A 250V	→	→
8	F101, 102	3A 250V	→	T3.0A 250V	T3.15A 50V	→	→
9	R275	2P 1.5K	→	→	→	→	2P 1.2K
11	R300	OPEN	→	→	→	27K	→
12	D120, 125	OPEN	→	→	→	1SS133	→
13	R301	OPEN	→	→	→	100K	→

	※	U	C	R	A	B	H
14	J155, 235, 240, 265	OPEN	→	→	→	SHORT	→
15	J263, 264	OPEN	→	→	SHORT	→	→
16	D103	1S133	→	→	→	OPEN	→

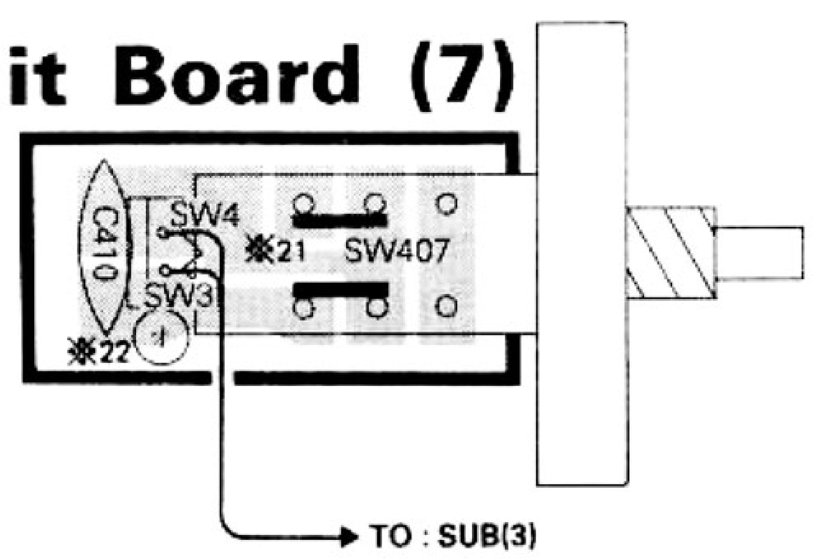
■ *PRINTED CIRCUIT BOARD (Pattern Side)*

※ 文字面：Component Side

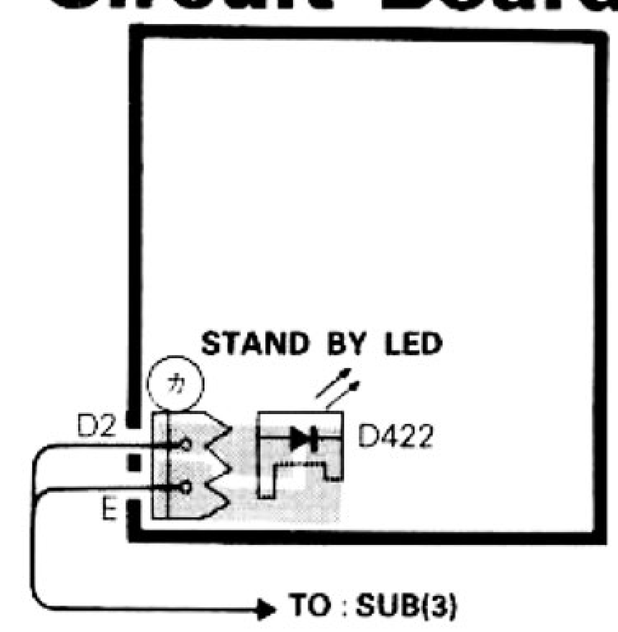
Surround Circuit Board (1)



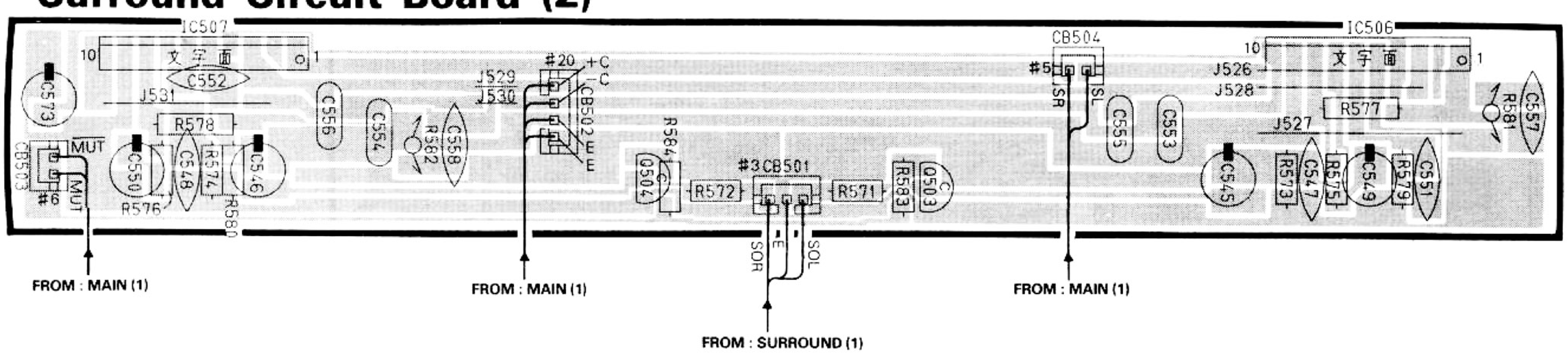
Sub Circuit Board (7)



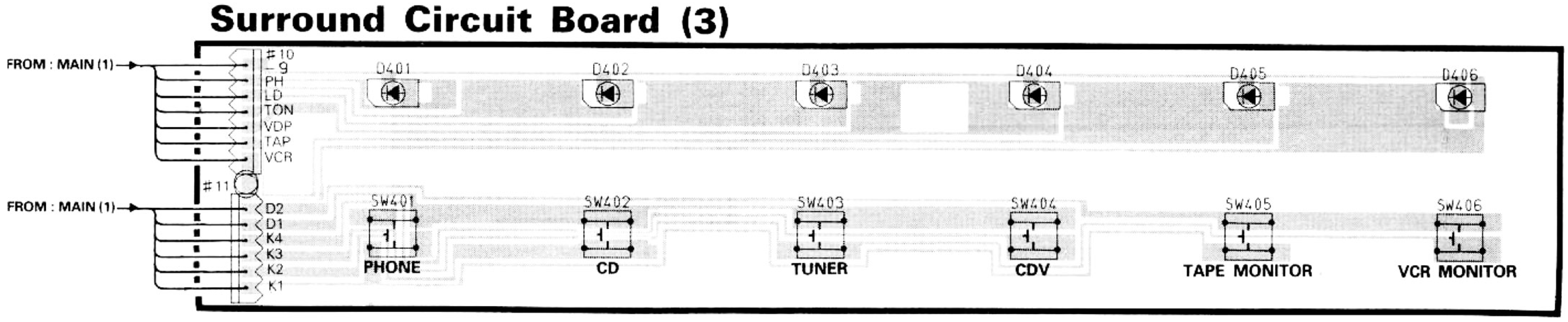
Sub Circuit Board (8)



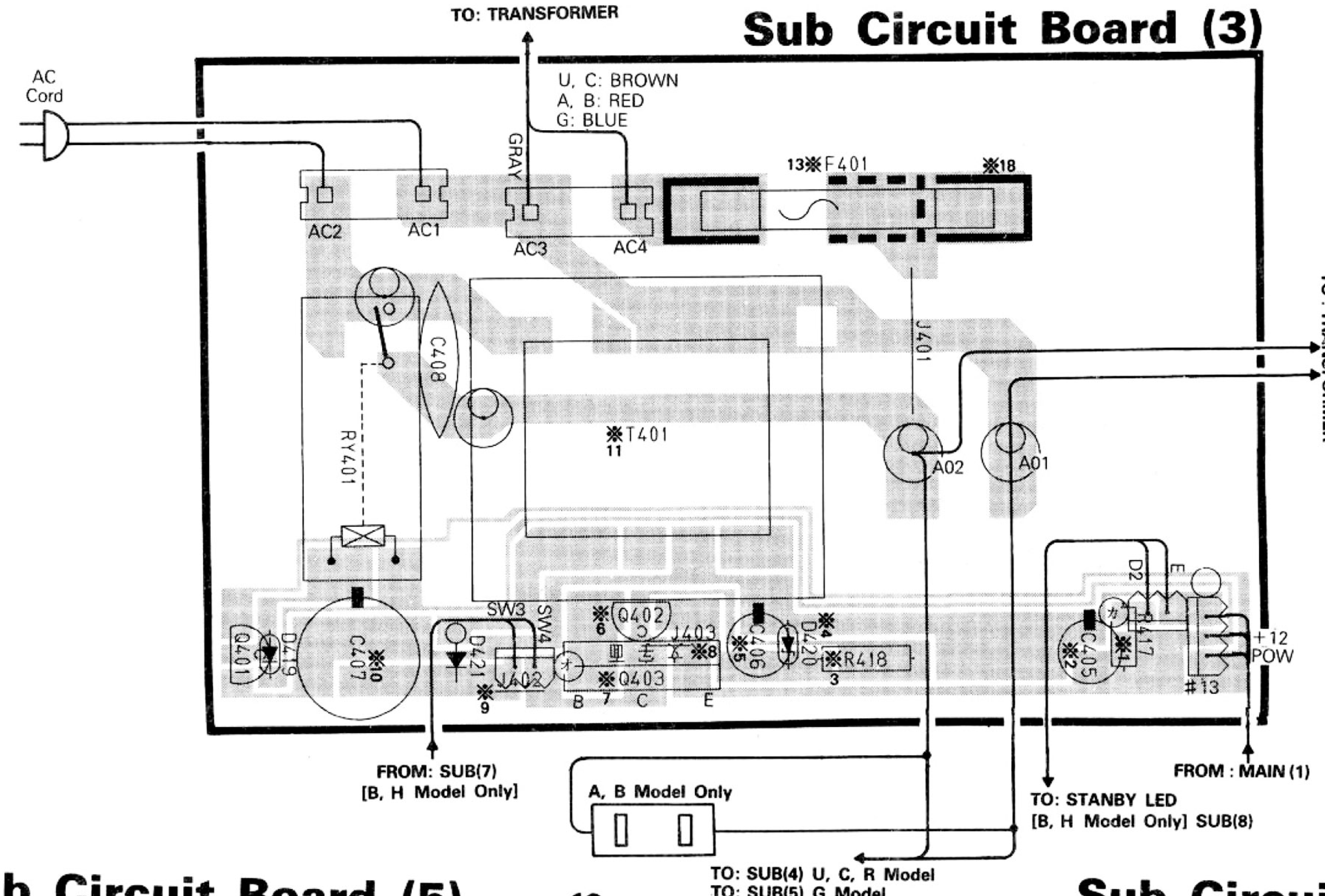
Surround Circuit Board (2)



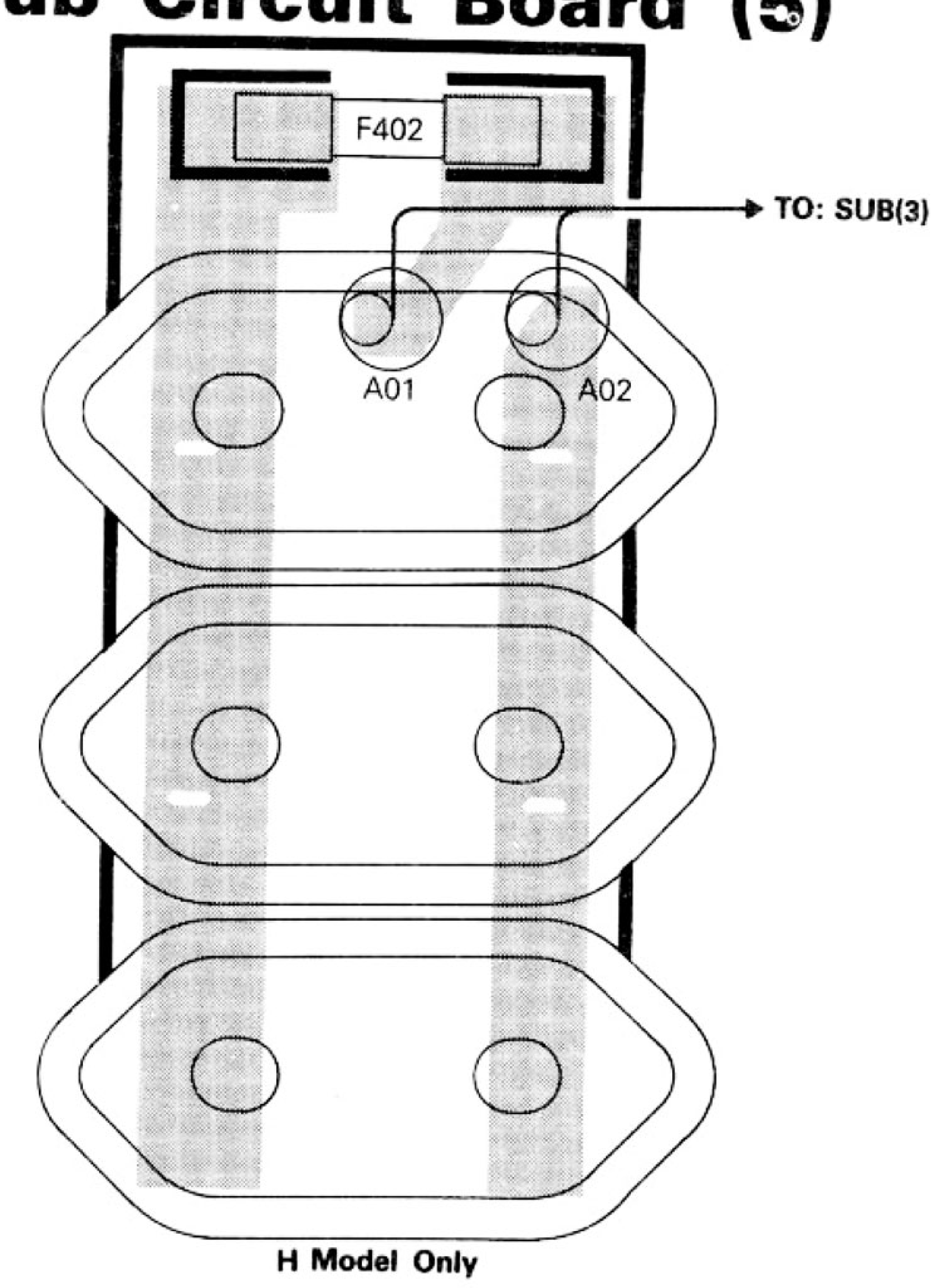
Surround Circuit Board (3)



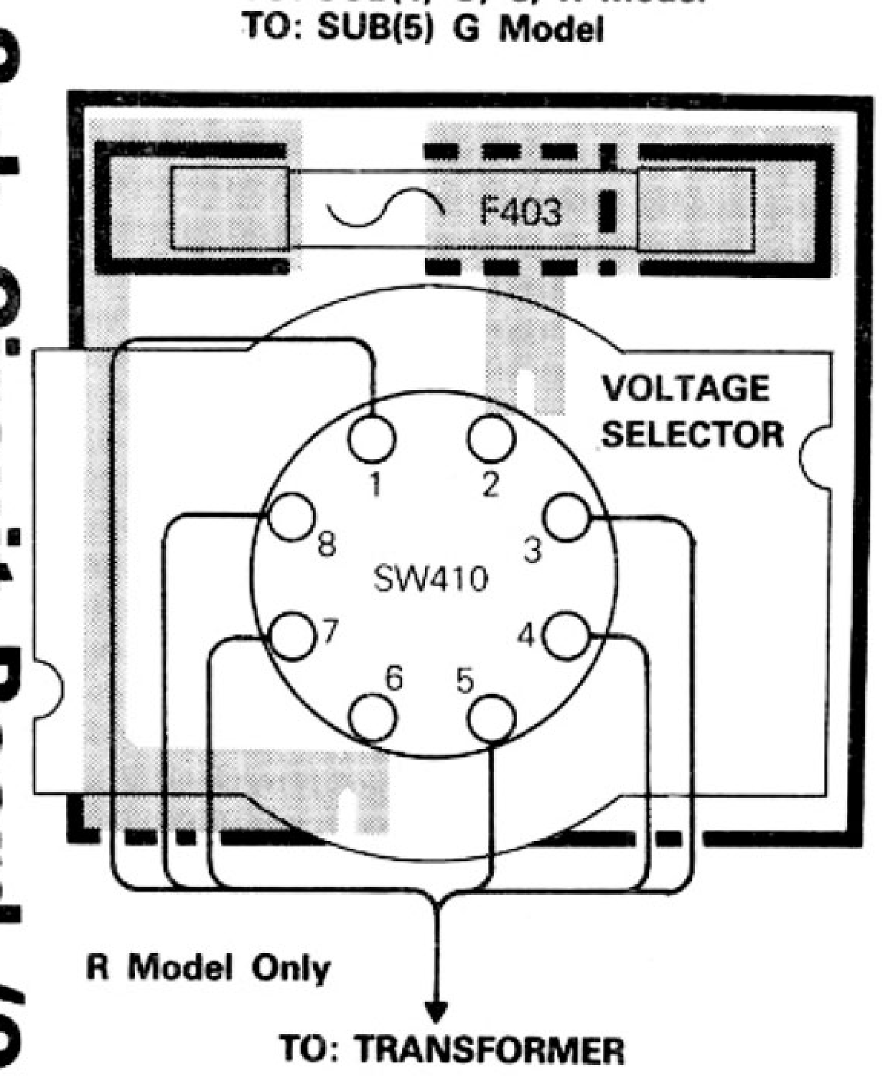
Sub Circuit Board (3)



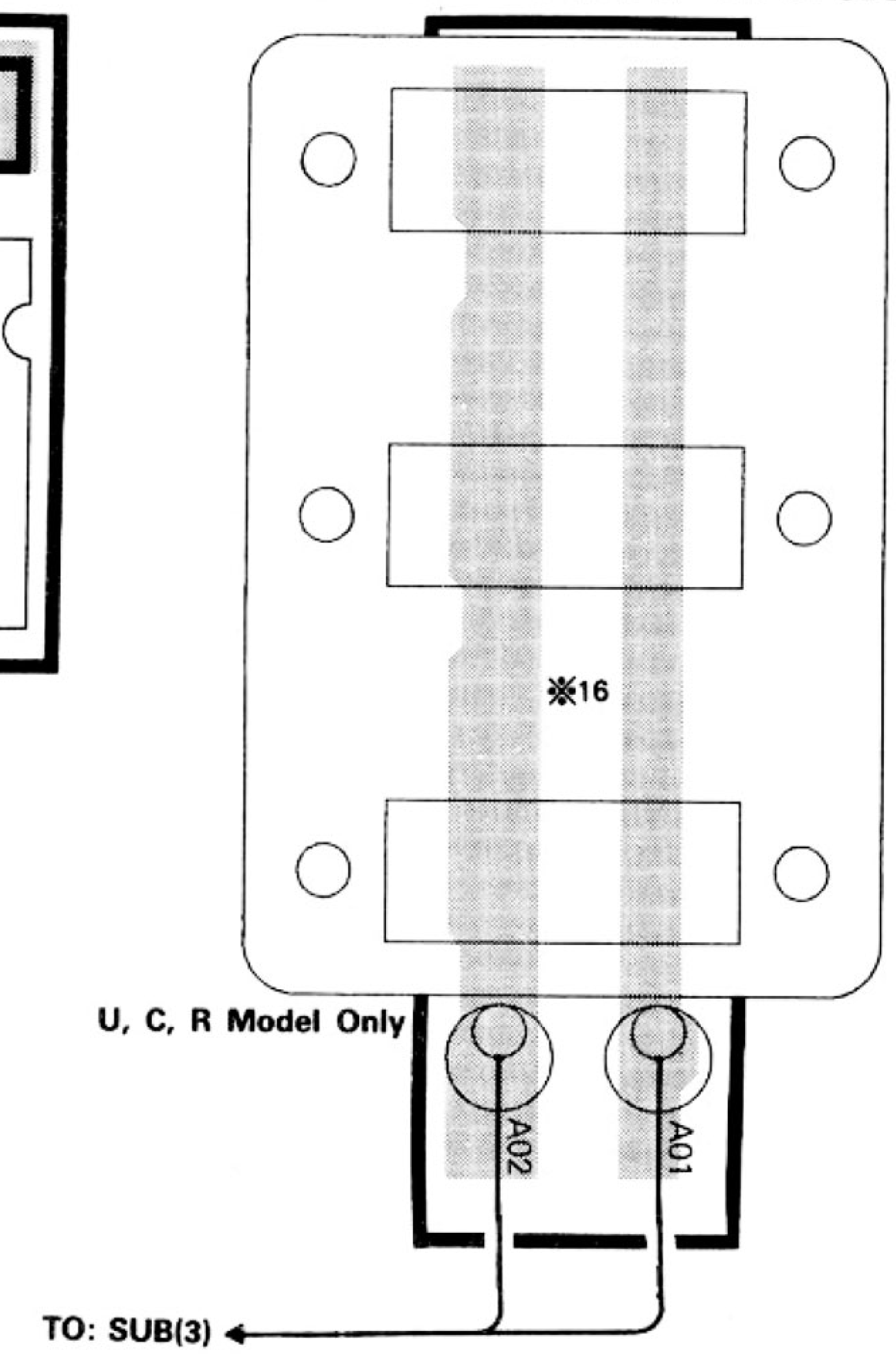
Sub Circuit Board (5)



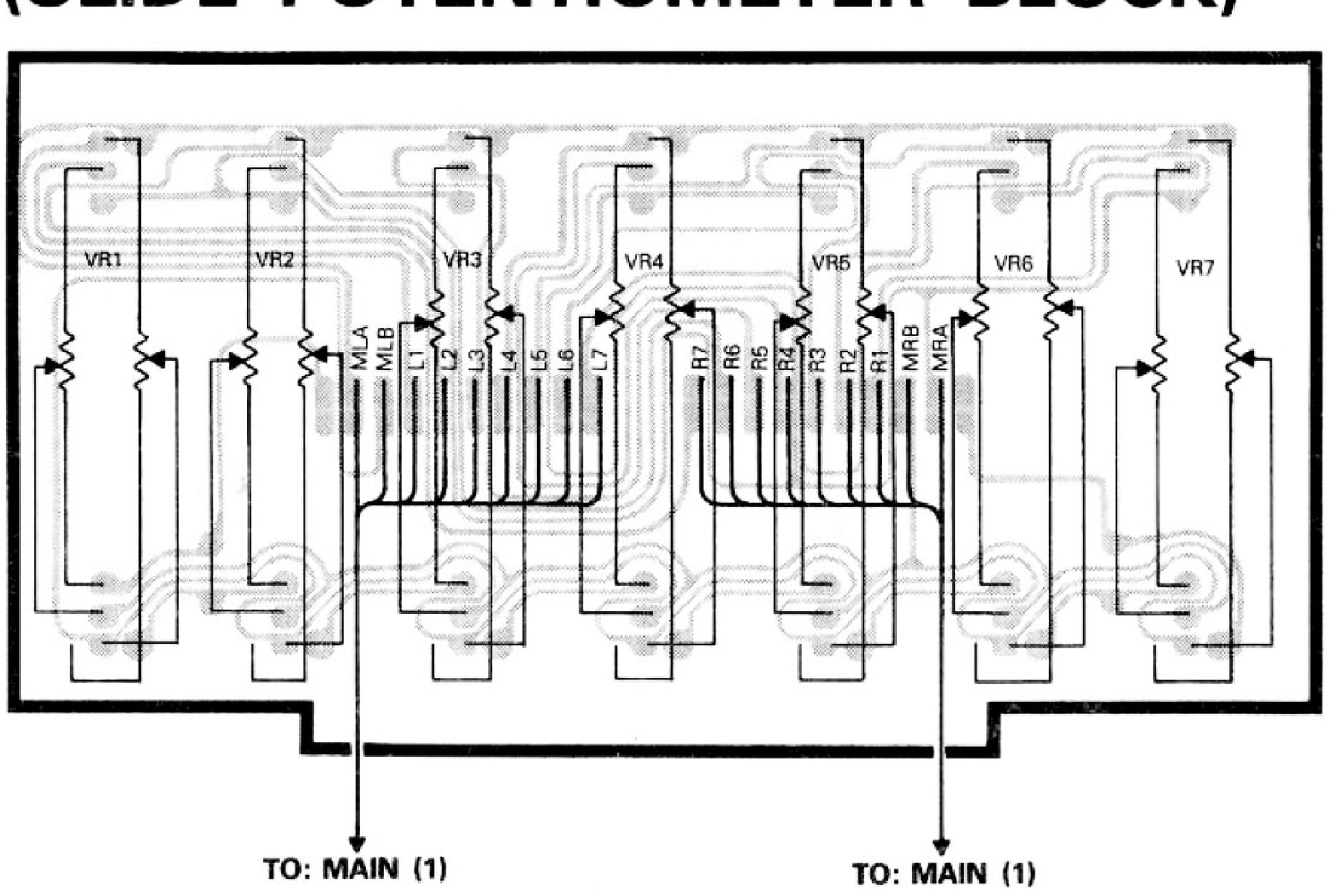
Sub Circuit Board (9)



Sub Circuit Board (4)



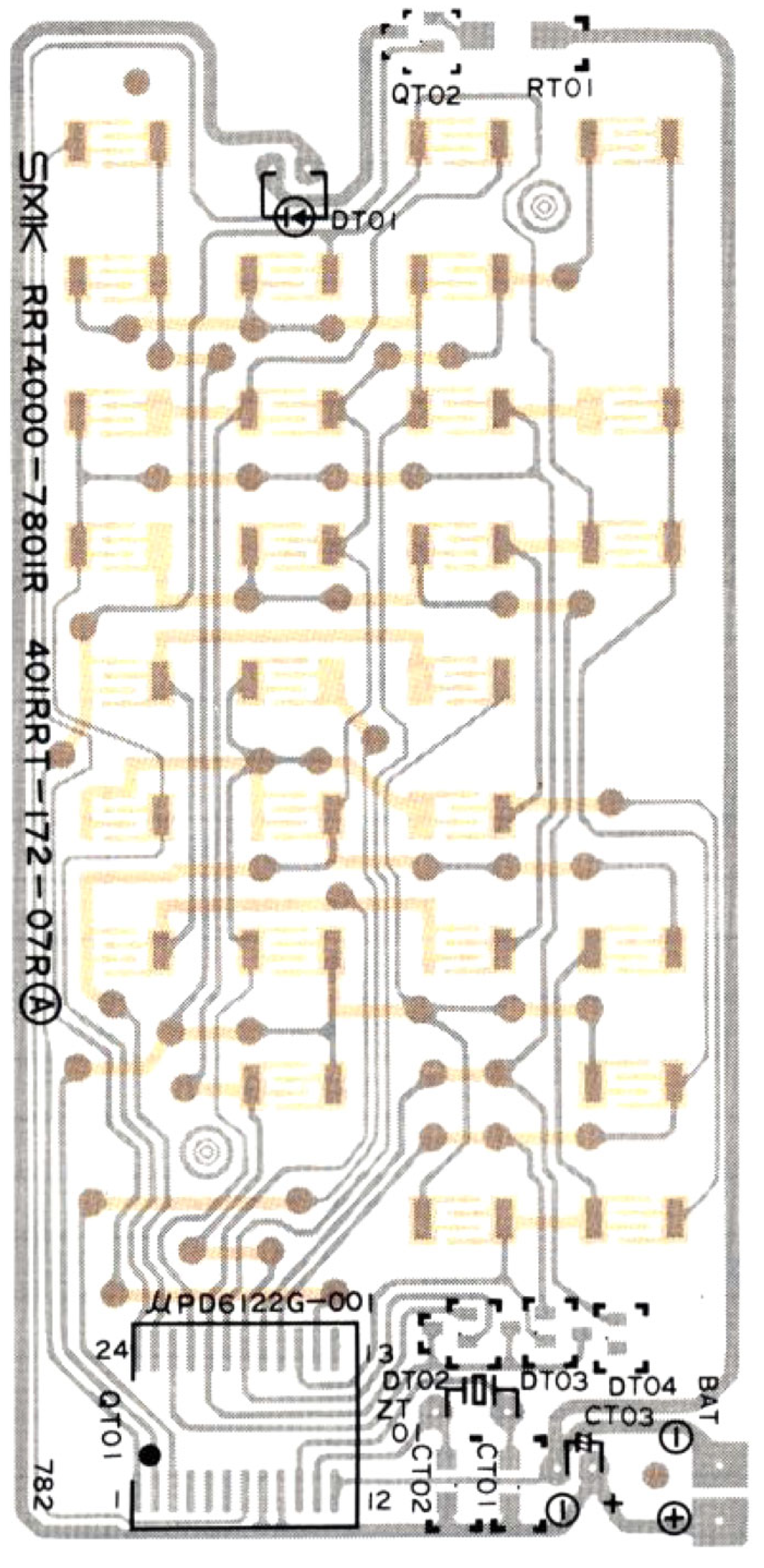
EQ. UNIT
(SLIDE POTENTIOMETER BLOCK)



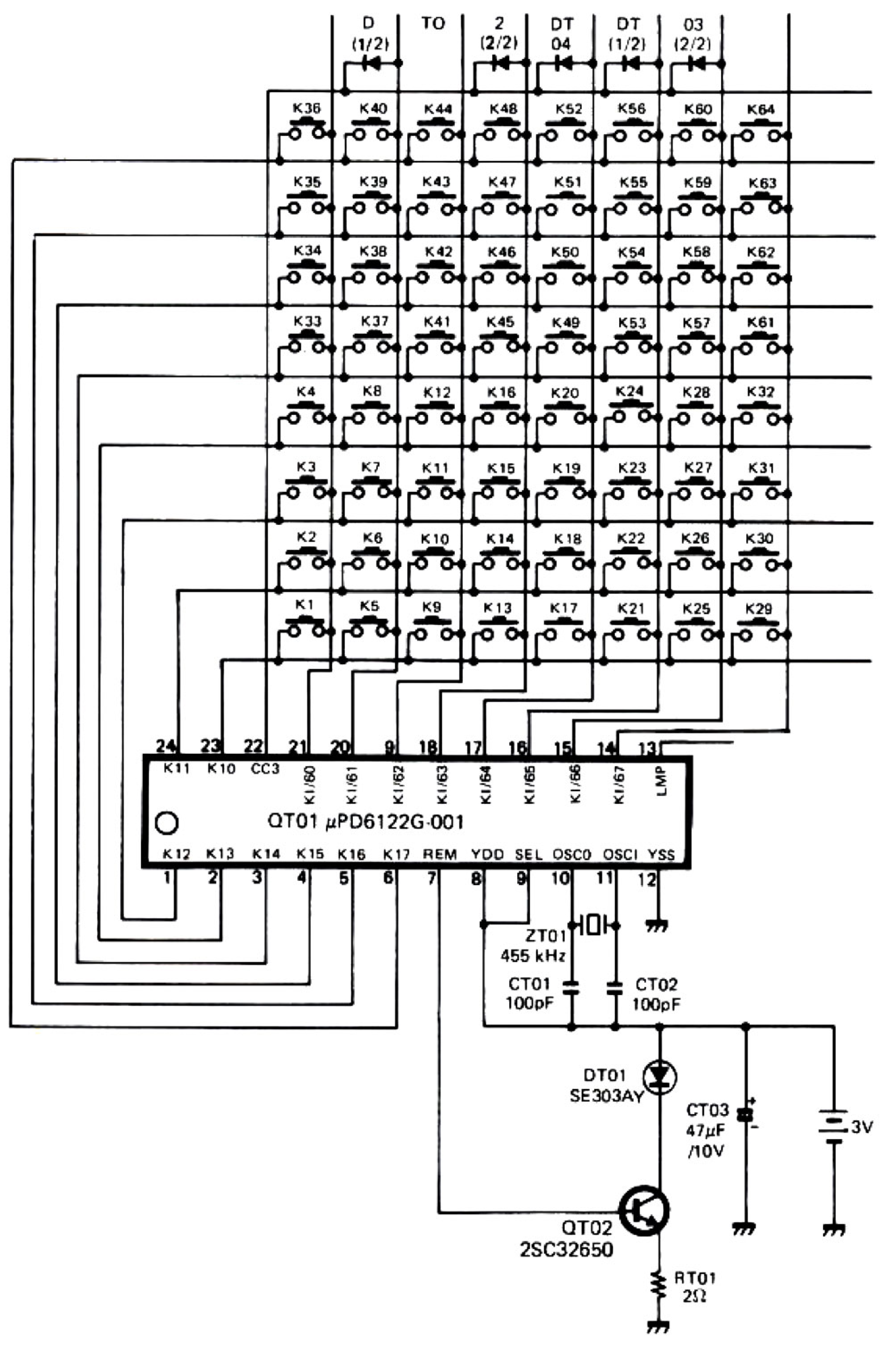
	※	U	C	R	A	B	H
1	R417	OPEN	→	→	→	1.2K	→
2	C405	OPEN	→	10/16	OPEN	→	→
3	R418	OPEN	→	8.2K	OPEN	→	→
4	D420	OPEN	→	MTZ12C	OPEN	→	→
5	C406	OPEN	→	47/16	OPEN	→	→
6	Q402	OPEN	→	○	OPEN	→	→
7	Q403	OPEN	→	○	OPEN	→	→
8	J403	○	→	×	○	→	→
9	J402	○	→	→	→	×	→
10	C407	470/25	→	470/63	470/25	→	→
11	T401	XC083	→	XC082	XC084	→	→
13	F401	7A 125V	→	T7A 250V	T3.15A 250V	→	T2.5A 250V
16	⑨	○	→	→	×	→	→
18	⑥	×	→	○	×	→	→
19	F402	×	→	→	→	→	T2.5A 250V
20	⑥	×	→	→	→	→	○
21	SW407	×	→	→	→	KA80332	→
22	C410	OPEN	→	→	→	0.01	→
23	D422	OPEN	→	→	→	SLR-34URC3F	→

RS-CS31 REMOTE CONTROL TRANSMITTER

●PRINTED CIRCUIT BOARD (Pattern Side)



●SCHEMATIC DIAGRAM



●KEY FUNCTION

KEY No.	FUNCTION	CORD	KEY No.	FUNCTION	CORD
K1	TAPE PLAY	00	K33	TAPE DIR B	40
K2	TAPE ⊲⊲	01	K34	————	41
K3	TAPE ⊳⊳	02	K35	————	42
K4	TAPE STOP	03	K36	————	43
K5	TAPE REC/MUTE	04	K37	————	44
K6	TAPE REC/MUTE	05	K38	————	45
K7	TAPE A/B	06	K39	————	46
K8	TAPE DIR A	07	K40	————	47
K9	CD PLAY	08	K41	————	48
K10	CD ⏸/□	09	K42	————	49
K11	CD ⊳⊳|	0A	K43	————	4A
K12	CD |⊲⊲	0B	K44	————	4B
K13	CD ⊳⊳	0C	K45	————	4C
K14	CD ⊲⊲	0D	K46	————	4D
K15	PLAY/CUT	0E	K47	————	4E
K16	VCR	0F	K48	————	4F
K17	TUNER UP	10	K49	————	50
K18	TUNER DOWN	11	K50	————	51
K19	TUNER P1-P8/P9-P16	12	K51	————	52
K20	————	13	K52	————	53
K21	PHONO	14	K53	————	54
K22	CD	15	K54	————	55
K23	TUNER	16	K55	————	56
K24	CDV	17	K56	————	57
K25	TAPE	18	K57	————	58
K26	————	19	K58	————	59
K27	VOLUME UP	1A	K59	————	5A
K28	VOLUME DOWN	1B	K60	————	5B
K29	————	1C	K61	————	5C
K30	————	1D	K62	————	5D
K31	————	1E	K63	————	5E
K32	POWER	1F	K64	————	5F

PARTS LIST

■ ELECTRICAL PARTS

■ WARNING

Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.

• Carbon resistors 1/4 W are not included in the ELECTRICAL PARTS list. For the parts No. of the carbon resistor, refer to P. 29.

Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク
	NA 09 63 50	***Main Circuit Board***		メ イ ン シ ー ト			U	
	NA 09 63 60	〃		〃			C	
	NA 09 66 60	〃		〃			R	
	NA 09 66 70	〃		〃			A	
	NA 09 66 80	〃		〃			B	
	NA 09 76 30	〃		〃			H	
	FG 20 03 00	Ceramic Cap.	3PF 50V	セ ラ コ ン	C183, 184, 226			
	FG 41 11 50	〃	15PF 50V	〃	C193 ~ 196			
	FG 21 05 00	〃	5PF 50V	〃	C191, 192			
	FG 21 21 00	〃	100PF 50V	〃	C139 ~ 142, 181, 182			
	FG 21 22 20	〃	220PF 50V	〃	C103, 104, 133			
	FG 41 24 70	〃	470PF 50V	〃	C132			
	FG 41 26 80	〃	680PF 50V	〃	C119, 120, 167, 168			
	FG 41 31 00	〃	1000PF 50V	〃	C173, 174, 185, 186			
	FG 41 31 50	〃	1500PF 50V	〃	C197, 198			
	FG 41 32 20	〃	2200PF 50V	〃	C163, 164			
	FG 24 36 80	〃	6800PF 50V	〃	C159, 160, 169, 170			
	FG 24 41 00	〃	0.01μF 50V	〃	C220, 222			
	FG 74 42 20	〃	0.022μF 50V	〃	C117, 118, 161, 162			
	FZ 00 41 30	Semiconductive Ceramic Cap.	0.1μF 25V	半導体セラコン	C115, 116, 147, 148, 155, 156			
	UA 25 32 70	Mylar Cap.	2700PF 50V	マ イ ラ ー コ ン	C107, 108			
	UA 25 41 00	〃	0.01μF 50V	〃	C109, 110			
	UA 25 41 20	〃	0.012μF 50V	〃	C153, 154, 165, 166			
	UA 25 43 90	〃	0.039μF 50V	〃	C151, 152			
	UA 25 44 70	〃	0.047μF 50V	〃	C205, 206			
	UA 25 45 60	〃	0.056μF 50V	〃	C157, 158			
	Ui 91 74 70	Electrolytic Cap.	47μF 6.3V	ケ ミ コ ン	C105, 106			
	UJ 11 81 00	〃	100μF 6.3V	〃	C224			
	UW 82 81 00	〃	100μF 10V	〃	C113, 114 135, 210			
	Ui 91 84 70	〃	470μF 10V	〃	C136, 176			
	Ui 33 71 00	〃	10μF 16V	〃	C134, 209			
	UW 83 73 30	〃	33μF 16V	〃	C122, 123, 130			
	UW 63 81 00	〃	100μF 16V	〃	C125			
	UW 84 73 30	〃	33μF 25V	〃	C127			
	FZ 00 70 90	〃	47μF 25V	〃	C143, 144, 225			
	FZ 00 64 70	〃	220μF 25V	〃	C129			
※	VE 01 92 00	〃	47μF 35V	〃	C187 ~ 190, 199, 200			
	Ui 36 53 30	〃	0.33μF 50V	〃	C149, 150			
	Ui 36 54 70	〃	0.47μF 50V	〃	C101, 102			
	Ui 36 31 00	〃	1μF 50V	〃	C145, 146, 223, 227, 228			
	UW 86 63 30	〃	3.3μF 50V	〃	C137, 138, 171, 172, 177 ~ 180, 218			
	UW 85 64 70	〃	4.7μF 50V	〃	C111, 112			
	Ui 91 91 00	〃	1000μF 6.3V	〃	C121, 124			
	Ui 91 91 00	〃	1000μF 6.3V	〃	C128		U, C, R, A	
	VB 17 01 00	〃	4700μF 5.5V	〃	〃		B, H	
	UM 09 93 30	〃	3300μF 35V	〃	C212, 213			
	UK 16 61 00	BP Electrolytic Cap.	1μF 50V	BP ケ ミ コ ン	C175, 208			
	UW 62 91 00	Electrolytic Cap.	1000μF 10V	ケ ミ コ ン	C211			
	FZ 00 72 00	〃	220μF 80V	オーディオケミコン	C219			
	VE 33 98 00	〃	8200μF 65V	ブロックケミコン	C214, 215			
	Ui 33 71 00	〃	10μF 16V	ケ ミ コ ン	C131		U, C, R, A	
	Ui 36 54 70	〃	0.47μF 50V	〃	〃		B, H	

※New Parts（新規部品）

Ref. No.	Part No.	Description			部品名	Remarks	Common Model	Markets	ランク
	FH 23 41 00	Ceramic Cap.	0.01μF	500V	セラコン	C216			
	UT 45 21 00	Polypropylene Film Cap.	100PF	100V	ポリプロコン	C201 ~ 204			
	HJ 35 83 90	Carbon Resistor	390kΩ	1/4W	カーボン抵抗	R227, 228			
	HL 32 22 20	Metal Oxide Film Resistor	0.22Ω	2W	酸金抵抗	R251 ~ 254			
	HL 32 46 80	〃	68Ω	2W	〃	R282			
	HL 32 51 80	〃	180Ω	2W	〃	R280			
	HL 32 52 70	〃	270Ω	2W	〃	R283, 284			
	HL 32 61 20	〃	1.2KΩ	2W	〃	R275		H	
	HL 32 61 50	〃	1.5KΩ	2W	〃	〃		U, C, R, A, B	
	HV 45 34 70	Flame Proof Carbon Resistor	4.7Ω	1/4W	不燃化カーボン抵抗	R167, 178, 259, 260, 265, 266			
	HV 45 41 00	〃	10Ω	1/4W	〃	R278, 289, 302			
	HV 45 41 50	〃	15Ω	1/4W	〃	R281			
	HV 45 44 70	〃	47Ω	1/4W	〃	R150			
	HV 45 51 00	〃	100Ω	1/4W	〃	R117, 118, 201, 202			
	HV 45 53 30	〃	330Ω	1/4W	〃	R249, 250			
	HV 45 61 00	〃	1KΩ	1/4W	〃	R245, 246			
	HV 45 61 80	〃	1.8KΩ	1/4W	〃	R247, 248			
	HV 45 62 20	〃	2.2KΩ	1/4W	〃	R257, 258			
	HV 45 65 60	〃	5.6KΩ	1/4W	〃	R255, 256			
	VB 86 12 00	Pre-Set Potentiometer	B2.2KΩ		半固定抵抗器	VR103, 104			
	VB 86 29 00	〃	B2.2KΩ		〃	〃			
※	VE 49 93 00	Potentiometer	250KΩMN		可変抵抗器	VR102			
※	VE 49 94 00	〃	100KΩB x 2		〃	VR101			
※	VE 49 91 00	〃	200KΩB		〃	VR106			
	iA 09 70 00	Transistor	2SA970 (GR, BL)		トランジスター	Q135			
	iA 10 15 20	〃	2SA1015 (Y)		〃	Q103, 110, 112			
	iC 18 15 20	〃	2SC1815 (Y)		〃	Q101, 102, 104 ~ 107			
	iC 22 40 00	〃	2SC2240 (GR, BL)		〃	Q117 ~ 120, 123, 124, 133, 134, 136 ~ 138, 150			
	iC 28 78 20	〃	2SC2878 (A, B)		〃	Q115, 116			
	iC 20 60 00	〃	2SC2060		〃	Q111			
	VA 85 47 00	〃	2SA1370 (D, E, F)		〃	Q121, 122			
※	VE 91 96 00	〃	2SC2925T (T)		〃	Q109			
※	VE 02 92 00	〃	2SD1985		〃	Q108, 113, 114			
	iF 00 55 60	Diode	1SS82		ダイオード	D111, 112, 115			
	iF 00 34 50	〃	1SS133		〃	D120, 125		B, H	
	iF 00 34 50	〃	1SS133		〃	D101, 104 ~ 108			
	iF 00 34 50	〃	1SS133		〃	D103		U, C, R, A	
	iH 00 08 70	Diode Bridge	4D4B41		ダイオードブリッジ	D122			
	iH 00 09 90		2B4B41		〃	D118			
	iF 01 07 20	Zener Diode	MTZ5.6A		ツェナーダイオード	D109			
	iF 01 07 90	〃	MTZ7.5A		〃	D110			
	iF 01 08 70	〃	MTZ9.1C		〃	D117			
	iF 00 89 30	〃	MTZ16A		〃	D102			
	iF 01 08 60	Zener Diode	MTZ9.1B		〃	D116			
	iF 00 19 40	〃	HZ24-2		〃	D114			
	iG 05 49 00	IC	M54542		IC	IC108			

※New Parts（新規部品）

Ref. No.	Part No.				Description		部品名	Remarks	Common Model	Markets	ランク
	iG	05	82	10	IC	M5218LV	I C	IC101, 111			
	iG	15	14	00	〃	M5226P	〃	IC109, 110			
	iG	08	92	00	〃	LC4066B	〃	IC102 ～ 106	Inter-Changeable		
	iG	06	16	00	〃	μPD4066BC	〃	〃			
	iG	11	05	00	〃	M4066BP	〃	〃			
	XD	08	40	01	〃	MN4066B	〃	〃			
	XD	14	80	01	〃	BU4066B	〃	〃			
	XA	54	90	01	〃	LB1294	〃	IC112			
※	XD	62	70	01	〃	LC6505C-3525	〃	IC107			
	iX	60	35	80	Transistor	2SA1358	トランジスター	Q129, 130			
	iX	60	35	90	〃	2SC3421	〃	Q125, 126			
	KA	90	63	80	Switch	5MEVQ-QRB-04M	ライトタッチスイッチ	SW101	Inter-Changeable	U, C, R, A	
	VE	32	73	00	Tact Switch	KHH-MA901	タクトスイッチ	〃		〃	
※	VE	60	72	00	Push Switch	2-2	プッシュスイッチ	SW102			
	GD	90	04	70	Output coil	1.7μH	アウトプットコイル	L101, 102			
	GG	00	07	00	Ceramic Resonator	FCR-400K	セラミック振動子	XL101			
	KC	00	19	40	Relay	DH24D2-OTM	リレー	RY101	Inter-Changeable		
	KC	00	20	00	〃	JR2a-DC24V	〃	〃			
	VD	85	31	00	Remote Control Receiver Unit	GP1U501	リモコン受光ユニット	U101			
	VC	36	44	00	Pin Jack	2P	ピンジャック	PJ105, 106			
	LB	40	10	30	〃	4P	〃	PJ102 ～ 104			
	LB	40	10	50	〃	4P	〃	PJ101			
	LB	30	17	60	Jack, Head Phone		ヘッドホンジャック	JK102			
	LB	10	07	30	Mini Jack		ミニジャック	JK101			
	LB	50	07	10	ST Connector Socket	5P	ST コネクターソケット	CB101			
	LB	60	83	90	〃	6P	〃	CB102			
	KB	00	03	60	Fuse	T3.0A 250V	ヒューズ	F101, 102		R	
	KB	00	07	60	〃	T3.15A 250V	〃	〃		A, B, H	
	KB	00	26	50	〃	3A 250V	〃	〃		U, C	
※	VF	21	63	00	〃	2.5A 250V	〃	F103, 104		〃	
	KB	00	04	20	〃	T2.5A 250V	〃	〃		R	
	KB	00	06	90	〃	T2.5A 250V	〃	〃		A, B, H	
	LA	00	20	00	Lapping Terminal	P=7.5 2P i-Type	ラッピング端子板				
	LA	00	21	10	〃	P=5 2P i-Type	〃				
	LA	00	21	10	〃	P=5 3P i-Type	〃				
	VB	84	59	00	Speaker Terminal	8P	スピーカー端子				
	VA	82	15	00	Radiator		ラジエター				
	LB	20	18	80	Holder Pin		ホルダーピン				
	BB	06	95	10	Ground Metal		ランド金具				
	BA	08	40	00	Heat Sink		放熱器				
	Ei	33	00	86	Bind Tapping Screw	3 x 8 FCM3-B ℓ	バインドタッピングネジ		PACK		
	EX	60	00	90	Cup Screw	3 x 8 FCM3-B ℓ	カップスクリュー(Bタイト)			C	

※New Parts（新規部品）

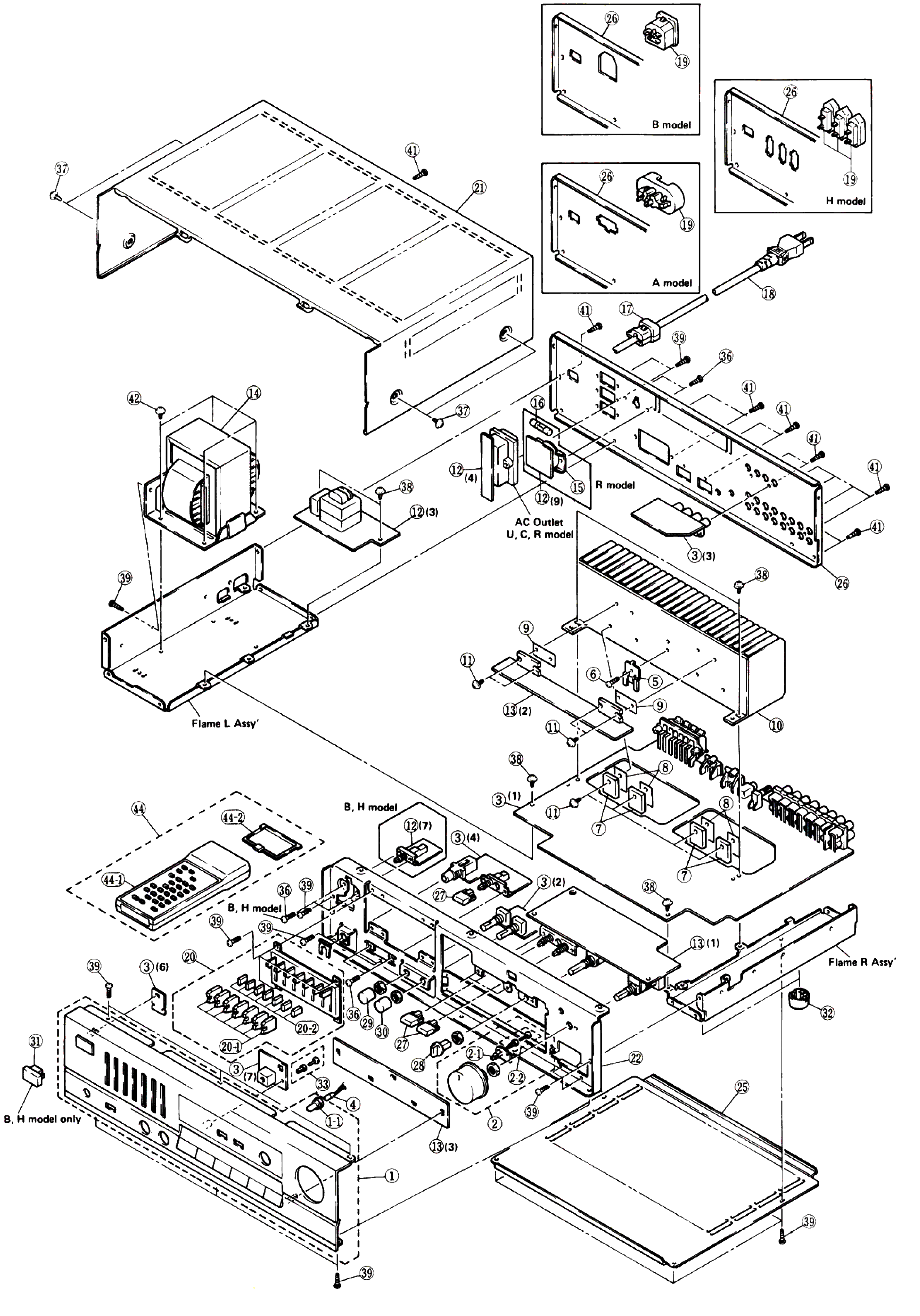
Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク
	NA 09 63 70	***Sub Circuit Board***		サブシート			U, C	
	NA 09 63 80	〃		〃			R	
	NA 09 63 90	〃		〃			A	
	NA 09 64 00	〃		〃			B	
	NA 09 64 10	〃		〃			H	
	Fi 51 41 00	Ceramic Cap.	0.01μF	セラコン	C408			
	Fi 55 41 00	〃	0.01μF 50V	〃	C410		B, H	
	Ui 33 71 00	Electrolytic Cap.	10μF 16V	ケミコン	C405		R	
	Ui 33 74 70	〃	47μF 16V	〃	C406		R	
	UJ 14 84 70	〃	470μF 25V	〃	C407		U, C, A, B, H	
	UW 67 84 70	〃	470μF 63V	〃	〃		R	
	iF 00 34 50	Diode	1SS133	ダイオード	D419			
	iH 00 14 30	〃	1SR35-100AT-93X	〃	D421			
	iF 00 88 70	Zener Diode	MTZ12C	ツェナーダイオード	D420		R	
	VD 95 26 00	LED	SLR-34URC3F	LED	D422		B, H	
	iC 18 15 20	Transistor	2SC1815 (Y)	トランジスター	Q401			
	iC 22 40 00		2SC2240 (GR, BL)		Q402		R	
	VB 22 27 00		2SD1485		Q403		R	
	KA 80 33 20	Push Switch	2-2NS	プッシュスイッチ	SW407		B, H	
	VE 56 89 00	Relay	DH12D1-O(M)	リレー	RY401			
	KB 00 07 60	Fuse	T3.15A 250V	ヒューズ	F401		A, B	
	KB 00 13 00	〃	T7A 250V	〃	〃		R	
	KB 00 15 20	〃	7A 125V	〃	〃		U, C	
	KB 00 06 90	〃	T2.5A 250V	〃	F401, 402		H	
	XC 08 20 01	Power Transformer		電源トランス	T401		R	
	XC 08 30 01	〃			〃		U, C	
	XC 08 40 01	〃		〃	〃		A, B, H	
	LB 20 18 80	Holder Pin	PC-FHI	ヒューズホルダーピン				
	LA 00 21 40	Lapping Terminal	2P, P=10, i-Type	ラッピング端子				
	LA 00 38 70	〃	2P, P=10, WTM-Type	〃				
	LB 60 81 70	AC Outlet		ACアウトレット			U, C, R	
	NA 09 64 20	***Surround Circuit Board***						
	FG 41 12 20	Ceramic Cap.	22PF 50V	セラコン	C505			
	FG 41 14 70	〃	47PF 50V	〃	C551, 552, 571, 572			
	FG 41 16 80	〃	68PF 50V	〃	C527			
	FG 41 22 20	〃	220PF 50V	〃	C521			
	FG 41 23 30	〃	330PF 50V	〃	C547, 548			
	FG 21 21 80	〃	180PF 50V	〃	C526			
	FG 41 26 80	〃	680PF 50V	〃	C509, 514, 516, 518			
	FG 44 45 60	〃	0.047μF 50V	〃	C557, 558			
	FA 15 31 20	Mylar Cap.	1200PF 50V	マイラーコン	C517			

※New Parts（新規部品）

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク
		FA 15 31 60	Mylar Cap.	1600PF 50V	マイラーコン	C528			
		FA 15 33 30	〃	3300PF 50V	〃	C515, 519			
		FA 15 34 70	〃	4700PF 50V	〃	C539			
		FA 15 35 60	〃	5600PF 50V	〃	C510, 532			
		FA 15 42 70	〃	0.027μF 50V	〃	C506, 507, 536			
		FA 15 43 30	〃	0.033μF 50V	〃	C511, 535			
		FA 15 44 70	〃	0.047μF 50V	〃	C508			
		FA 15 51 00	〃	0.1μF 50V	〃	C553 ～ 556			
		Ui 91 74 70	Electrolytic Cap.	47μF 6.3V	ケミコン	C520			
		UJ 12 84 70	〃	470μF 10V	〃	C502			
		Ui 83 72 20	〃	22μF 16V	〃	C537			
		Ui 93 74 70	〃	47μF 16V	〃	C524, 573			
		Ui 93 81 00	〃	100μF 16V	〃	C538			
		Ui 93 83 30	〃	330μF 16V	〃	C522, 541			
		Ui 24 64 70	〃	4.7μF 25V	〃	C523			
		UJ 14 72 20	〃	22μF 25V	〃	C545, 546, 549, 550			
		Ui 36 51 00	〃	0.1μF 50V	〃	C534			
		Ui 36 53 30	〃	0.33μF 50V	〃	C533			
		Ui 36 61 00	〃	1μF 50V	〃	C501, 503, 504, 512, 513, 525, 529, 530, 531, 540, 542			
		HV 45 41 00	Flame Proof Carbon Resistor	10Ω 1/4W	不燃化カーボン	R581, 582			
		HV 45 51 00	〃	100Ω 1/4W	〃	R501, 540, 553			
		VB 86 15 00	Pre-Set Potentiometer	B10kΩ	半固定抵抗	VR503	Inter-Changeable		
		VB 86 32 00	〃	B10kΩ	〃	〃			
※		VE 29 79 00	Push Switch	2-2NS	プッシュスイッチ	SW501			
※		VE 29 92 00	Potentiometer	20kB x 2	可変抵抗	VR502			
※		VE 29 96 00	Potentiometer with Motor	100kY x 4	モーター付可変抵抗	VR501			
		iC 18 15 20	Transistor	2SC1815 (Y)	トランジスター	Q501, 502, 505			
		iX 60 42 00	〃	2SC2878 (A, B)	〃	Q503, 504			
		iF 00 34 50	Diode	1SS133	ダイオード	D501, 502			
		iF 00 87 30	LED RED	SLR-34URC3H3	LED	D401 ～ 406			
		iG 03 75 00	IC	MN3101	IC	IC503			
		XC 10 30 01	〃	MN3007Y	〃	IC504			
		XD 38 60 01	〃	LA2730	〃	IC505			
		iG 07 68 00	〃	NJM45585	〃	IC502, 508			
		XB 24 70 01	〃	μPC4570HA	〃	IC501			
		iG 10 27 00	〃	μPC1188H	〃	IC506, 507			
		VD 00 45 00	Base Pin	2P i-Type	PHベースピン	CB503, 504			
		VD 00 46 00	〃	3P i-Type	〃	CB501			
		VD 00 47 00	〃	4P i-Type	〃	CB502			
		KA 90 63 80	Switch	5M, EVQ-QRB-04M	ライトタッチスイッチ	SW401 ～ 406			
		VE 32 73 00	Tact Switch	KHH-MA901	タクトスイッチ	〃			

※New Parts（新規部品）

■ EXPLODED VIEW



	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク
※	1	VE 29 19 00	Panel Unit		パネルユニット			U, C, R, A	
※	〃	VE 29 20 00	〃		〃			B, H	
※	1-1	VE 41 10 00	Lamp Cap.		ランプキャップ				
※	2	VE 29 83 00	Knob Unit		VRツマミユニット				
※	2-1	VD 27 06 00	LED	RED SLB-15	LED	D113			
	2-2	CB 60 56 20	Plastic Rivet		プラスチックリベット				
※	3	NA 09 63 50	Main Circuit Board		メインシート			U	
※	〃	NA 09 63 60	〃		〃			C	
※	〃	NA 09 66 60	〃		〃			R	
※	〃	NA 09 66 70	〃		〃			A	
※	〃	NA 09 66 80	〃		〃			B	
※	〃	NA 09 76 30	〃		〃			H	
※	4	VE 62 89 00	Lamp	115mA 14.5V	ランプ				
	5	AA 62 87 90	Support TR		サポートTR				
	6	EX 60 00 90	Cup Screw	3 x 8 FCM3Bℓ	カップスクリュー(Bタイト)				
※	7	iX 61 10 20	Transistor	2SB1347 (P, S, Q)	トランジスター	Q131, 132		U, C, R, A, B	
※	〃	iX 61 10 30	〃	2SD2029 (P, S, Q)	〃	Q127, 128		〃	
※	〃	iX 61 10 40	〃	2SB1362 (P, S, Q)	〃	Q131, 132		H	
※	〃	iX 61 10 50	〃	2SD2053 (P, S, Q)	〃	Q127, 128		〃	
	8	VB 43 50 00	Sheet	19 x 24	放熱シート			B	
	〃	VC 39 72 00	〃	22 x 29	デリカシートジャンボ			U, C, R, A, B	
	9	iL 00 05 10	Insulation Base	AC243	マイカベース				
※	10	VE 24 65 00	Heat Sink		ラジエター				
	11	EZ 00 13 50	Cup Screw	3 x 14 FCM3-Bℓ	カップスクリュー(Bタイト)				
※	12	NA 09 63 70	Sub Circuit Board		サブシート			U, C	
※	〃	NA 09 63 80	〃		〃			R	
※	〃	NA 09 63 90	〃		〃			A	
※	〃	NA 09 64 00	〃		〃			B	
※	〃	NA 09 64 10	〃		〃			H	
※	13	NA 09 64 20	Surround Circuit Board		サラウンドシート				
※	14	XD 61 80 01	Power Transformer		電源トランス			U	
※	〃	XD 61 90 01	〃		〃			C	
※	〃	XD 62 00 01	〃		〃			R	
※	〃	XD 62 10 01	〃		〃			A, B	
※	〃	XD 62 20 01	〃		〃			H	
	15	VA 93 29 00	Voltage Selector	ESE-37226	電圧切換器			R	
	16	KB 00 03 70	Fuse	T3.5A 250V	ヒューズ			〃	
※	17	VD 77 82 00	Cord Stopper		コードストッパー			U, C	
	〃	VD 37 59 00	〃	222Y2271-10	〃			R, A, B, H	
※	18	MG 00 22 20	Power Cord	10A 125V	電源コード			U, C	
※	〃	MG 00 16 30	〃	6A 250V	〃			R	
※	〃	MG 00 23 10	〃	7.5A 250V	〃			A	
※	〃	MG 00 23 30	〃	300/300V	〃			B	
※	〃	MG 00 23 20	〃	2.5A 250V	〃			H	
	19	VC 62 61 00	AC Outlet	2P	ACアウトレット			A	
	〃	VC 62 68 00	〃	2P	〃			H	
	〃	VC 62 70 00	〃	2P	〃			B	
※	20	VE 29 90 00	Slide Potentiometer Block	7	スライドVRブロック				
※	20-1	CX 60 35 80	Knob		ノブ				

※New Parts（新規部品）

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク
※	20-2	CX 60 35 90	Marker		マーカー				
※	21	VE 24 67 00	Top Cover		トップカバー				
※	22	VE 24 68 00	Sub Chassis		サブシャシー				
	25	AA 62 88 20	Bottom Cover		ボトムカバー				
※	26	VE 24 70 00	Rear Panel		リヤパネル			R	
※	〃	VE 24 71 00	〃		〃			U, C	
※	〃	VE 24 77 00	〃		〃			B	
※	〃	VE 24 72 00	〃		〃			A	
※	〃	VE 24 73 00	〃		〃			H	
	27	CB 63 42 30	Push Button		プッシュボタン				
	28	CB 62 08 40	Switch Knob		スイッチツマミ				
	29	CB 62 60 40	Knob (B)		ツマミ (B)	BALANCE			
※	30	VE 37 37 00	Knob L		ノブ L	LOUDNESS			
	31	CB 66 08 10	Button		ボタン	POWER		B, H	
	32	CB 61 03 90	Leg		レッグ				
	33	CB 60 56 20	Plastic Rivet		プラスチックリベット				
※	34	VE 78 72 00	Spacer		スペーサー				
	35	CB 65 34 00	Cushion		クッション				
	36	ED 33 00 66	Binding Head Screw	M3 x 6 FCM3Bℓ	バインド小ネジ	PACK			
	37	EZ 00 13 20	Cup Screw	4 x 8 FCM3Bℓ	カップスクリュー(Sタイト)				
	38	EK 03 00 60	BW Head Tapping Screw	3 x 8 ∮10ZMC2-Y	BWタッピングネジ				
	39	Ei 33 00 86	Binding Head Tapping Screw	3 x 8 FCM3Bℓ	バインドヘッドBタイトネジ	PACK			
	41	EZ 00 04 60	Bind Head Bonding Screw	3 x 8 FCM3Bℓ	ボンディングBタイトネジ				
	42	EX 60 08 50	Cup Screw	4 x 10 FCM3Bℓ	カップスクリュー(Sタイト)				
	43	CB 06 92 50	Binding Tie	BK-1	インシュロックタイ				
※	44	VE 42 74 00	Remote Control Transmitter	RS-CS31	リモートコントロールトランスミッター				
※	44-1	CX 60 35 50	Case Ass'y		ケース Ass'y				
	44-2	CX 60 30 80	Lid		電池蓋				
			Accessories		付属品				
※		VE 42 74 00	Remote Control Transmitter	RS-CS31	リモートコントロールトランスミッター				
			Battery	AA (R06)	電池				

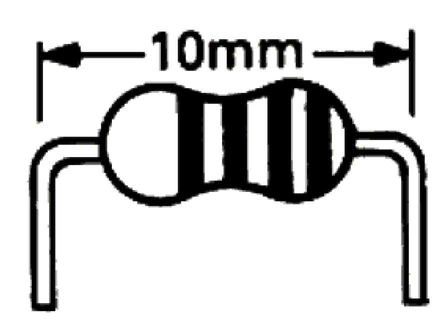
※New Parts（新規部品）

Part List for Carbon Resistor

Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0Ω	HJ35 3100	※	12KΩ	HJ35 7120	HF85 7120
1.8 〃	HJ35 3180	※	15 〃	HJ35 7150	HF85 7150
2.2 〃	HJ35 3220	HF85 3220	18 〃	HJ35 7180	HF85 7180
3.3 〃	HJ35 3330	HF85 3330	22 〃	HJ35 7220	HF85 7220
4.7 〃	HJ35 3470	HF85 3470	27 〃	HJ35 7270	HF85 7270
5.6 〃	HJ35 3560	HF85 3560	33 〃	HJ35 7330	HF85 7330
10 〃	HJ35 4100	HF85 4100	39 〃	HJ35 7390	HF85 7390
15 〃	HJ35 4150	HF85 4150	47 〃	HJ35 7470	HF85 7470
22 〃	HJ35 4220	HF85 4220	56 〃	HJ35 7560	HF85 7560
27 〃	HJ35 4270	HF85 4270	68 〃	HJ35 7680	HF85 7680
33 〃	HJ35 4330	HF85 4330	82 〃	HJ35 7820	HF85 7820
39 〃	HJ35 4390	HF85 4390	91 〃	HJ35 7910	HF85 7910
47 〃	HJ35 4470	HF85 4470	100 〃	HJ35 8100	HF85 8100
56 〃	HJ35 4560	HF85 4560	120 〃	HJ35 8120	HF85 8120
68 〃	HJ35 4680	HF85 4680	150 〃	HJ35 8150	HF85 8150
82 〃	HJ35 4820	HF85 4820	180 〃	HJ35 8180	HF85 8180
100 〃	HJ35 5100	HF85 5100	220 〃	HJ35 8220	HF85 8220
110 〃	HJ35 5110	HF85 5100	270 〃	HJ35 8270	HF85 8270
120 〃	HJ35 5120	HF85 5120	330 〃	HJ35 8330	HF85 8330
150 〃	HJ35 5150	HF85 5150	390 〃	HJ35 8390	HF85 8390
160 〃	HJ35 5160	※	470 〃	HJ35 8470	HF85 8470
180 〃	HJ35 5180	HF85 5180	560 〃	HJ35 8560	HF85 8560
220 〃	HJ35 5220	HF85 5220	680 〃	HJ35 8680	HF85 8680
270 〃	HJ35 5270	HF85 5270	820 〃	HJ35 8820	HF85 8820
330 〃	HJ35 5330	HF85 5330	1.0MΩ	HJ35 9100	HF85 9100
390 〃	HJ35 5390	HF85 5390	1.2 〃	HJ35 9120	※
470 〃	HJ35 5470	HF85 5470	1.5 〃	HJ35 9150	HF85 9150
510 〃	※	HF85 5510	1.8 〃	HJ35 9180	HF85 9180
560 〃	HJ35 5560	HF85 5560	2.2 〃	HJ35 9220	HF85 9220
680 〃	HJ35 5680	HF85 5680	3.3 〃	HJ35 9330	HF85 9330
820 〃	HJ35 5820	HF85 5820	3.9 〃	HJ35 9390	※
910 〃	HJ35 5910	HF85 5910	4.7 〃	HJ35 9470	※
1.0KΩ	HJ35 6100	HF85 6100			
1.2 〃	HJ35 6120	HF85 6120			
1.5 〃	HJ35 6150	HF85 6150			
1.8 〃	HJ35 6180	HF85 6180			
2.0 〃	HJ35 6200	HF85 6200			
2.2 〃	HJ35 6220	HF85 6220			
2.4 〃	HJ35 6240	HF85 6240			
2.7 〃	HJ35 6270	HF85 6270			
3.0 〃	HJ35 6300	HF85 6300			
3.3 〃	HJ35 6330	HF85 6330			
3.6 〃	HJ35 6360	HF85 6360			
3.9 〃	HJ35 6390	HF85 6390			
4.7 〃	HJ35 6470	HF85 6470			
5.1 〃	HJ35 6510	HF85 6510			
5.6 〃	HJ35 6560	HF85 6560			
6.8 〃	HJ35 6680	HF85 6680			
8.2 〃	HJ35 6820	HF85 6820			
9.1 〃	HJ35 6910	HF85 6910			
10 〃	HJ35 7100	HF85 7100			

1/4W Type

HJ35 ○○○○



1/6W Type

HF85 ○○○○

